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Spacecraft/Environment Interactions CAE Tool
User's Manual - Volume II
(Appendix C)

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AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE
HANSCOM AIR FORCE BASE
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FIELD	GROUP	SUB-GROUP	Spacecraft charging analysis codes, NASCAP, POLAR, CAE tools Computer aided design, Computer aided engineering		
19 ABSTRACT (Continue on reverse if necessary and identify by block number) This CAE tool package will aid spacecraft developers by adding a user-friendly interface to two spacecraft charging analysis codes, namely NASCAP/GEO (NASA Charging Analyzer Program, Geosynchronous Orbits) and POLAR 1.1 (Potentials of Large Orbiting Spacecraft in the Auroral Region). The software package contains four major, independent programs. They are a model definition program with a specialized interface to ANVIL 5000, separate interactive control programs for analyzing models in different environments using either NASCAP/GEO or POLAR 1.1, and a graphics display program to present the calculation results using MOVIE.BYU (DYNA-MOVIE). Kenne...					
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22a NAME OF RESPONSIBLE INDIVIDUAL Michael J. Giger, Lt., USAF			22b. TELEPHONE (Include Area Code) [817] 377-3991		22c. OFFICE SYMBOL AFGL/PHE

APPENDIX C - SAMPLE RUNS

This appendix contains the input and output of a sample run for each of the CAE Tools: GEOCAT and POLCAT. The original object definition files have been included to provide a reference point. Direct comparison between the new and old object definitions may not be exact due to decisions made during creation of the objects with ANVIL 5000.

The first test case is FLTSATCOM for use with NASCAP/GEO in Section C.1, the second test case is a simple rendition of the Space Shuttle which has been dubbed the 'micro' shuttle for use with POLAR 1.1 and is in Section C.2.



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Justification	
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Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

C.1 NASCAP/GEO FLTSATCOM TEST RUN

Included in this section are the following files in order:

Old Object Definition File

Plots of FleetSatCom made using ANVIL 5000

IGES file created by ANVIL 5000 (FLTSATCOM.TAP)

Object Building Block File created with GEOCAT
(FLTSATCOM.OBB)

Object Definition File created by GEOCAT
(FLTSATCOM.ODF)

Material plots made with BYUMAT

NASCAP Rundeck (FLTSATCOMNAS.RUN)

NASCAP Test Environment (FORO22.DAT)

NASCAP Run Output (FLTSATCOM Results)

Plots of Results from GEOCAT

potential contours - CONBYU

surface potentials - BYUPOT

COMMENT PRELIMINARY FLEETSATCOM MODEL (VERSION 1)

COMMENT FLIGHT 7 SPACECRAFT WITH EHF MODULE

COMMENT MESH SIZE IS 1.5FT (0.457 M)

COMMENT S/C ILLUMINATED AT DAWN

COMMENT DEFINE MATERIALS

COMMENT

KAP3TN

3.50E+00	1.27E-04	1.00E-16	5.00E+00	2.10E+00	1.50E-01	7.15E+01	6.00E-01
3.12E+02	1.77E+00	4.55E-01	1.40E+02	2.00E-05	7.90E+19	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

LFALUM

3.50E+00	2.54E-05	1.23E-08	5.00E+00	2.10E+00	1.50E-01	7.15E+01	6.00E-01
3.12E+02	1.77E+00	4.55E-01	1.40E+02	2.00E-05	3.20E+12	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

S13GLD

3.50E+00	1.02E-04	6.50E-10	5.00E+00	2.10E+00	1.50E-01	-1.00E+00	0.00E+00
1.05E+00	9.80E+00	4.55E-01	1.40E+02	2.00E-05	1.50E+13	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

FSLICA

4.00E+00	1.52E-04	1.00E-14	1.00E+01	2.40E+00	4.00E-01	1.16E+02	8.10E-01
1.83E+02	1.86E+00	4.55E-01	1.40E+02	2.00E-05	6.58E+17	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

BLKVEL

3.50E+00	5.08E-05	1.40E-08	5.00E+00	2.10E+00	1.50E-01	7.15E+01	6.00E-01
3.12E+02	1.77E+00	4.55E-01	1.40E+02	2.00E-05	1.40E+12	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

SSMESH

1.00E+00	1.00E-03	-1.00E+00	4.70E+01	1.00E+00	8.00E-01	8.45E+01	8.20E-01
7.94E+01	1.74E+00	4.90E-01	1.23E+02	2.90E-05	-1.00E+00	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

KAP1TN

3.50E+00	5.08E-05	1.00E-16	5.00E+00	2.10E+00	1.50E-01	7.15E+01	6.00E-01
3.12E+02	1.77E+00	4.55E-01	1.40E+02	2.00E-05	2.00E+20	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

KAP2TN

3.50E+00	1.27E-05	1.00E-16	5.00E+00	2.10E+00	1.50E-01	7.15E+01	6.00E-01
3.12E+02	1.77E+00	4.55E-01	1.40E+02	2.00E-05	7.90E+20	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

EHFPRT

1.00E+00	1.00E-03	-1.00E+00	2.44E+01	1.40E+00	8.00E-01	-1.00E+00	0.00E+00
7.18E+00	5.55E+01	4.90E-01	1.23E+02	3.20E-05	-1.00E+00	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

ALUM

1.00E+00	1.00E-03	-1.00E+00	1.30E+01	9.70E-01	3.00E-01	1.54E+02	8.00E-01
2.20E+02	1.76E+00	2.44E-01	2.30E+02	4.00E-05	-1.00E+00	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

CPHENL

3.50E+00	5.08E-03	1.00E-10	7.00E+00	3.00E+00	3.00E-01	4.54E+01	4.00E-01
2.18E+02	1.77E+00	4.55E-01	1.40E+02	2.00E-05	1.00E+10	1.00E+04	2.00E+03
1.00E-13	1.00E+00	1.00E+03	2.00E+01				

COMMENT

COMMENT DEFINE OBJECT

COMMENT FSC EQUIPMENT MODULE

OCTAGON

AXIS -2 -6 0 -2 -2 0

WIDTH 6

SIDE 2
SURFACE + KAP2TN
SURFACE - KAP3TN
SURFACE C KAP1TN
ENDOBJ
COMMENT
COMMENT EQUIPMENT MODULE SIDES/ SSM PATCHES
PATCHR
CORNER -5 -6 0
DELTAS 1 1 1
SURFACE -X FSLICA
ENDOBJ
PATCHR
CORNER 0 -6 0
DELTAS 1 1 1
SURFACE +X FSLICA
ENDOBJ
PATCHR
CORNER 0 -4 -1
DELTAS 1 1 1
SURFACE +X FSLICA
ENDOBJ
PATCHR
CORNER -2 -3 -3
DELTAS 1 1 1
SURFACE -Z FSLICA
ENDOBJ
PATCHR
CORNER -3 -3 -3
DELTAS 1 1 1
SURFACE -Z FSLICA
ENDOBJ
PATCHR
CORNER -3 -4 -3
DELTAS 1 1 1
SURFACE -Z FSLICA
ENDOBJ
PATCHR
CORNER -2 -5 -3
DELTAS 1 1 1
SURFACE -Z FSLICA
ENDOBJ
PATCHR
CORNER -3 -6 -3
DELTAS 1 1 1
SURFACE -Z FSLICA
ENDOBJ
PATCHR
CORNER -2 -3 2
DELTAS 1 1 1
SURFACE +Z FSLICA
ENDOBJ
PATCHR
CORNER -3 -3 2
DELTAS 1 1 1
SURFACE +Z FSLICA

ENDOBJ
PATCHR
CORNER -2 -4 2
DELTAS 1 1 1
SURFACE +Z FSLICA
ENDOBJ
PATCHR
CORNER -3 -5 2
DELTAS 1 1 1
SURFACE +Z FSLICA
ENDOBJ
PATCHR
CORNER -2 -6 2
DELTAS 1 1 1
SURFACE +Z FSLICA
ENDOBJ
PATCHW
CORNER 0 -3 1
FACE FSLICA 1 0 1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER 0 -5 1
FACE FSLICA 1 0 1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER 0 -3 -1
FACE FSLICA 1 0 -1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER 0 -5 -1
FACE FSLICA 1 0 -1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER -4 -3 1
FACE FSLICA -1 0 1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER -4 -5 1
FACE FSLICA -1 0 1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER -3 -4 2
FACE FSLICA -1 0 1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER -4 -3 -1
FACE FSLICA -1 0 -1
LENGTH 1 1 1
ENDOBJ

PATCHW
CORNER -4 -5 -1
FACE FSLICA -1 0 -1
LENGTH 1 1 1
ENDOBJ
PATCHW
CORNER -3 -6 -2
FACE FSLICA -1 0 -1
LENGTH 1 1 1
ENDOBJ
COMMENT
COMMENT EQUIPMENT MODULE TOP/UHF TRANSMIT ANTENNA
OCTAGON
AXIS -2 -3 0 -2 -2 0
WIDTH 4
SIDE 2
SURFACE + S13GL0
ENDOBJ
COMMENT EHF ANTENNA PATCH
WEDGE
CORNER -1 -3 1
FACE KAP2TN -1 0 -1
LENGTH 1 1 1
SURFACE +Y EHPRT
ENDOBJ
COMMENT
COMMENT ANTENNA MESH
ASLANT
CORNER 0 1 -2
FACE SSMESH 1 -1 0
LENGTH 3 3 4
ENDOBJ
ATET
CORNER 0 1 2
FACE SSMESH 1 -1 1
LENGTH 3
ENDOBJ
ASLANT
CORNER -4 1 2
FACE SSMESH 0 -1 1
LENGTH 4 3 3
ENDOBJ
ATET
CORNER -4 1 2
FACE SSMESH -1 -1 1
LENGTH 3
ENDOBJ
ASLANT
CORNER -4 1 -2
FACE SSMESH -1 -1 0
LENGTH 3 3 4
ENDOBJ
ATET
CORNER -4 1 -2
FACE SSMESH -1 -1 -1
LENGTH 3

ENDOBJ
ASLANT
CORNER -4 1 -2
FACE SSMESH 0 -1 -1
LENGTH 4 3 3
ENDOBJ
ATET
CORNER 0 1 -2
FACE SSMESH 1 -1 -1
LENGTH 3
ENDOBJ
COMMENT
COMMENT UHF TRANSMIT ANTENNA MAST
BOOM
AXIS -2 -2 0 -2 0 0
RADIUS 0.218
SURFACE S13GL0
ENDOBJ
BOOM
AXIS -2 0 0 -2 4 0
RADIUS 0.083
SURFACE ALUM
ENDOBJ
BOOM
AXIS -2 4 0 -2 5 0
RADIUS 0.0416
SURFACE S13GL0
ENDOBJ
COMMENT
COMMENT SOLAR ARRAY PLUME SHIELD
PLATE
CORNER -4 -7 -2
DELTAS 0 1 3
TOP -X KAP1TN
BOTTOM +X ALUM
ENDOBJ
PLATE
CORNER -4 -7 1
DELTAS 0 1 1
TOP -X ALUM
BOTTOM +X ALUM
ENDOBJ
PLATE
CORNER -4 -7 2
DELTAS 3 1 0
TOP +Z KAP1TN
BOTTOM -Z ALUM
ENDOBJ
PLATE
CORNER -1 -7 2
DELTAS 1 1 0
TOP +Z ALUM
BOTTOM -Z ALUM
ENDOBJ
PLATE
CORNER 0 -7 -1

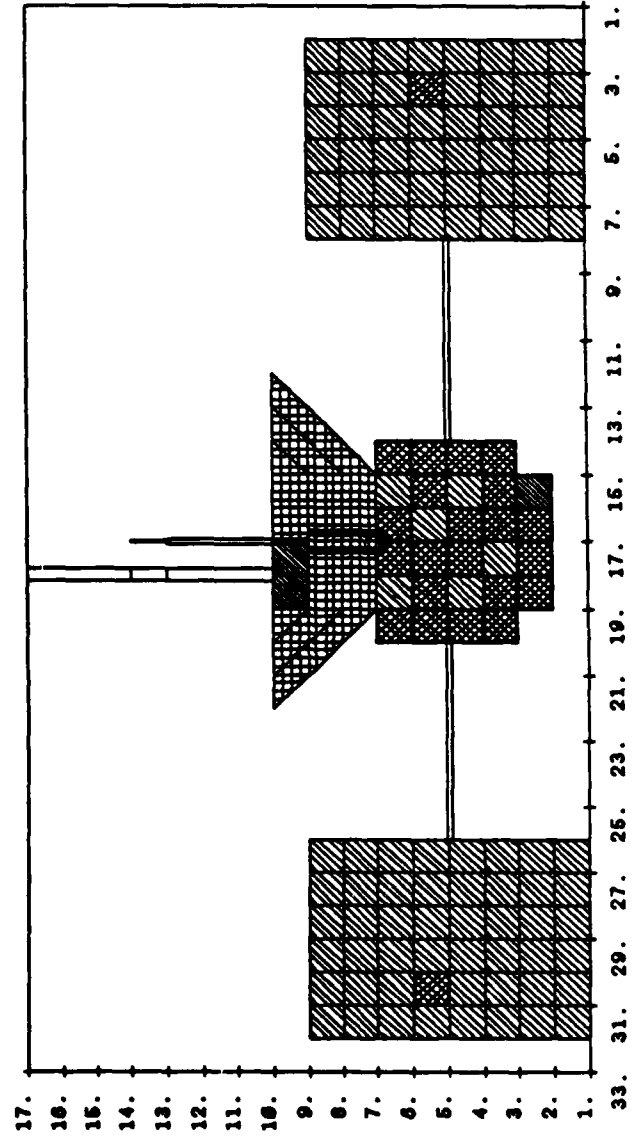
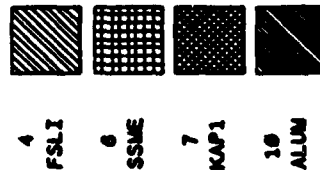
DELTAS 0 1 3
TOP +X KAP1TN
BOTTOM -X ALUM
ENDOBJ
PLATE
CORNER 0 -7 -7
DELTAS 0 1 1
TOP +X ALUM
BOTTOM -X ALUM
ENDOBJ
PLATE
CORNER -3 -7 -2
DELTAS 3 1 0
TOP -Z KAP1TN
BOTTOM +Z ALUM
ENDOBJ
PLATE
CORNER -4 -7 -2
DELTAS 1 1 0
TOP -Z ALUM
BOTTOM +Z ALUM
ENDOBJ
COMMENT
COMMENT AKM NOZZLE
PATCHR
CORNER -2 -6 0
DELTAS 1 1 1
SURFACE -Y CPHENL
ENDOBJ
COMMENT
COMMENT UHF RECEIVE ANTENNA
COMMENT GROUND PLANE CAVITY
WEDGE
CORNER 6 0 1
FACE ALUM 1 0 1
LENGTH 1 1 1
SURFACE -X ALUM
SURFACE +Y ALUM
SURFACE -Y ALUM
SURFACE -Z ALUM
ENDOBJ
WEDGE
CORNER 6 0 1
FACE ALUM -1 0 1
LENGTH 1 1 1
SURFACE +X ALUM
SURFACE +Y ALUM
SURFACE -Y ALUM
SURFACE -Z ALUM
ENDOBJ
WEDGE
CORNER 6 0 1
FACE ALUM 1 0 -1
LENGTH 1 1 1
SURFACE -X ALUM
SURFACE +Y ALUM

SURFACE -Y ALUM
SURFACE +Z ALUM
ENDOBJ
WEDGE
CORNER 6 0 1
FACE ALUM -1 0 -1
LENGTH 1 1 1
SURFACE +X ALUM
SURFACE +Y ALUM
SURFACE -Y ALUM
SURFACE +Z ALUM
ENDOBJ
COMMENT ANTENNA MAST
BOOM
AXIS 6 1 1 6 4 1
RADIUS 0.167
SURFACE S13GLO
ENDOBJ
BOOM
AXIS 6 4 1 6 5 1
RADIUS 0.167
SURFACE ALUM
ENDOBJ
BOOM
AXIS 6 5 1 6 8 1
RADIUS 0.167
SURFACE S13GLO
ENDOBJ
COMMENT ANTENNA BOOMS
BOOM
AXIS 1 -2 0 6 -2 0
RADIUS 0.333
SURFACE LFALUM
ENDOBJ
BOOM
AXIS 6 -2 0 6 0 0
RADIUS 0.333
SURFACE LFALUM
ENDOBJ
COMMENT
COMMENT SOLAR ARRAY PANELS
COMMENT PANELS // YZ PLANE
COMMENT CELL SIDE +X
PLATE
CORNER -2 -8 9
DELTAS 0 8 6
TOP +X FSLICA
BOTTOM -X BLKVEL
ENDOBJ
PLATE
CORNER -2 -8 -15
DELTAS 0 8 6
TOP +X FSLICA
BOTTOM -X BLKVEL
ENDOBJ
PLATE

CORNER -2 -4 13
DELTAS 0 1 1
TOP +X KAP1TN
BOTTOM -X BLKVEL
ENDOBJ
PLATE
CORNER -2 -4 -14
DELTAS 0 1 1
TOP +X KAP1TN
BOTTOM -X BLKVEL
ENDOBJ
COMMENT SOLAR ARRAY BOOMS
BOOM
AXIS -2 -4 3 -2 -4 9
RADIUS 0.06
SURFACE LFALUM
ENDOBJ
BOOM
AXIS -2 -4 -9 -2 -4 -3
RADIUS 0.06
SURFACE LFALUM
ENDOBJ
ENDSAT

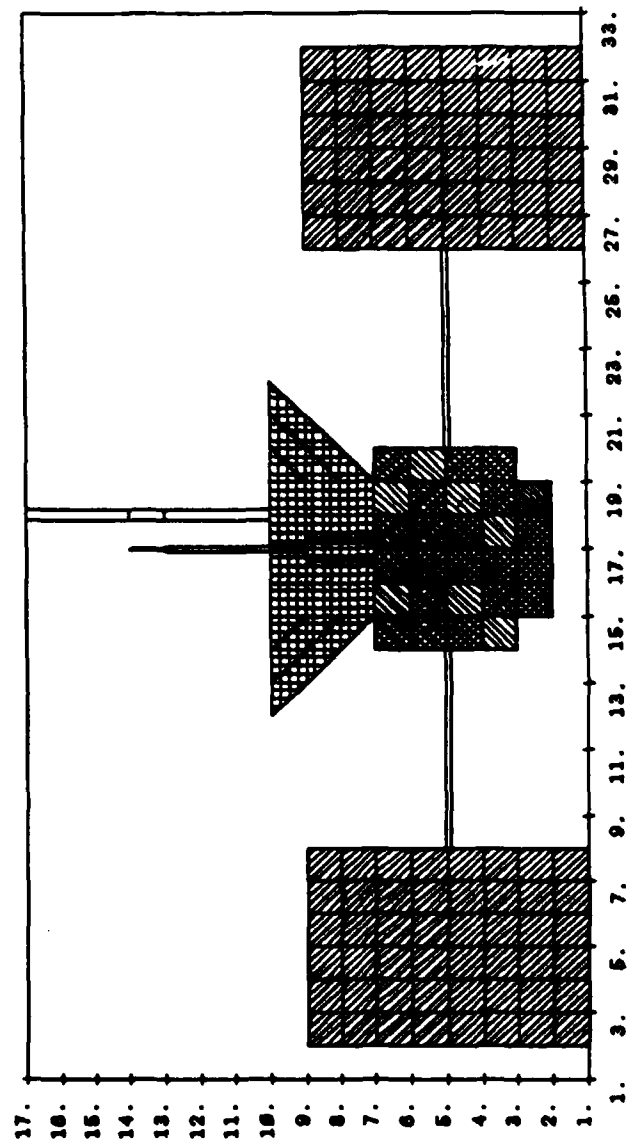
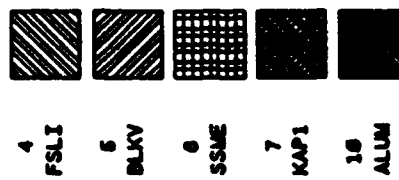
SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE POSITIVE X DIRECTION
FOR X VALUES BETWEEN 1 AND 17

MATERIAL LEGEND

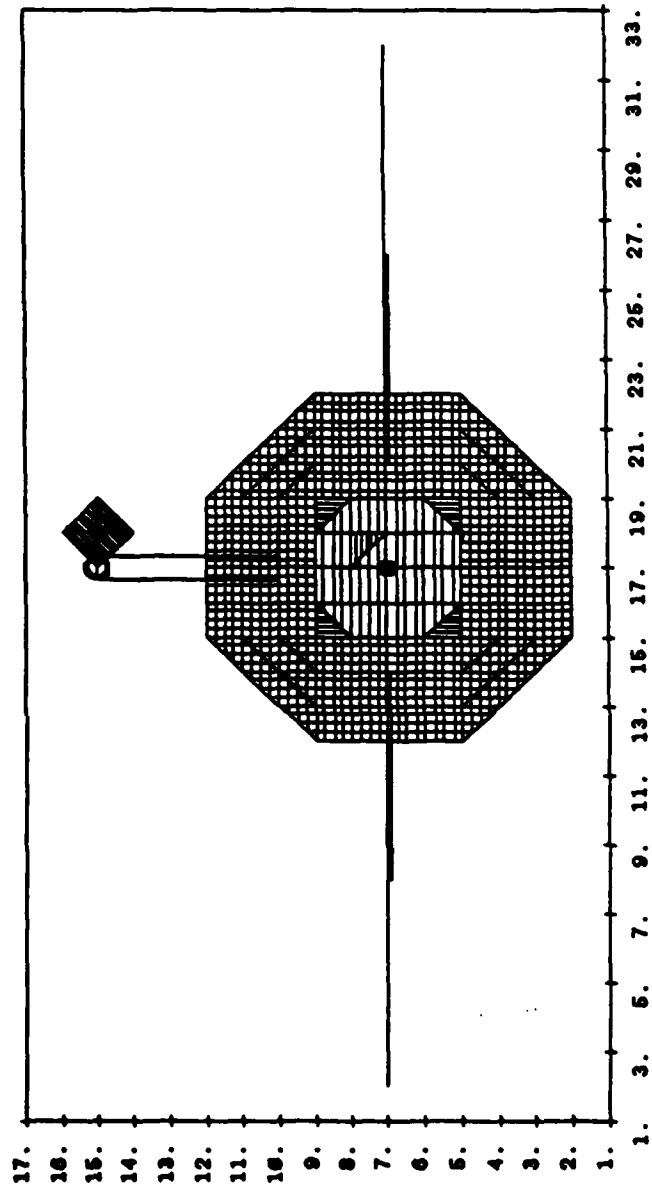
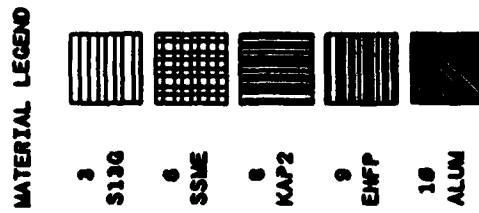


SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE NEGATIVE X DIRECTION
FOR X VALUES BETWEEN 1 AND 17

MATERIAL LEGEND

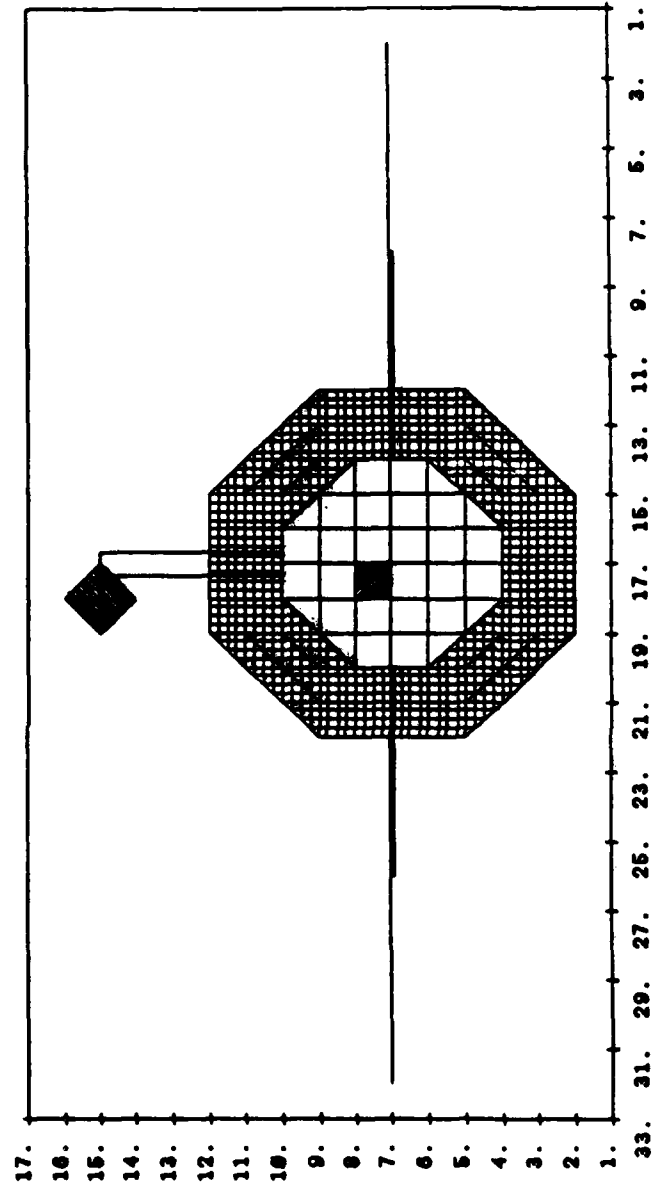
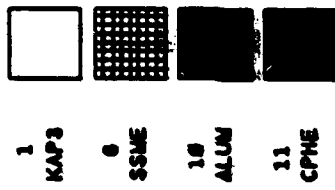


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FOR Y VALUES BETWEEN 1 AND 17

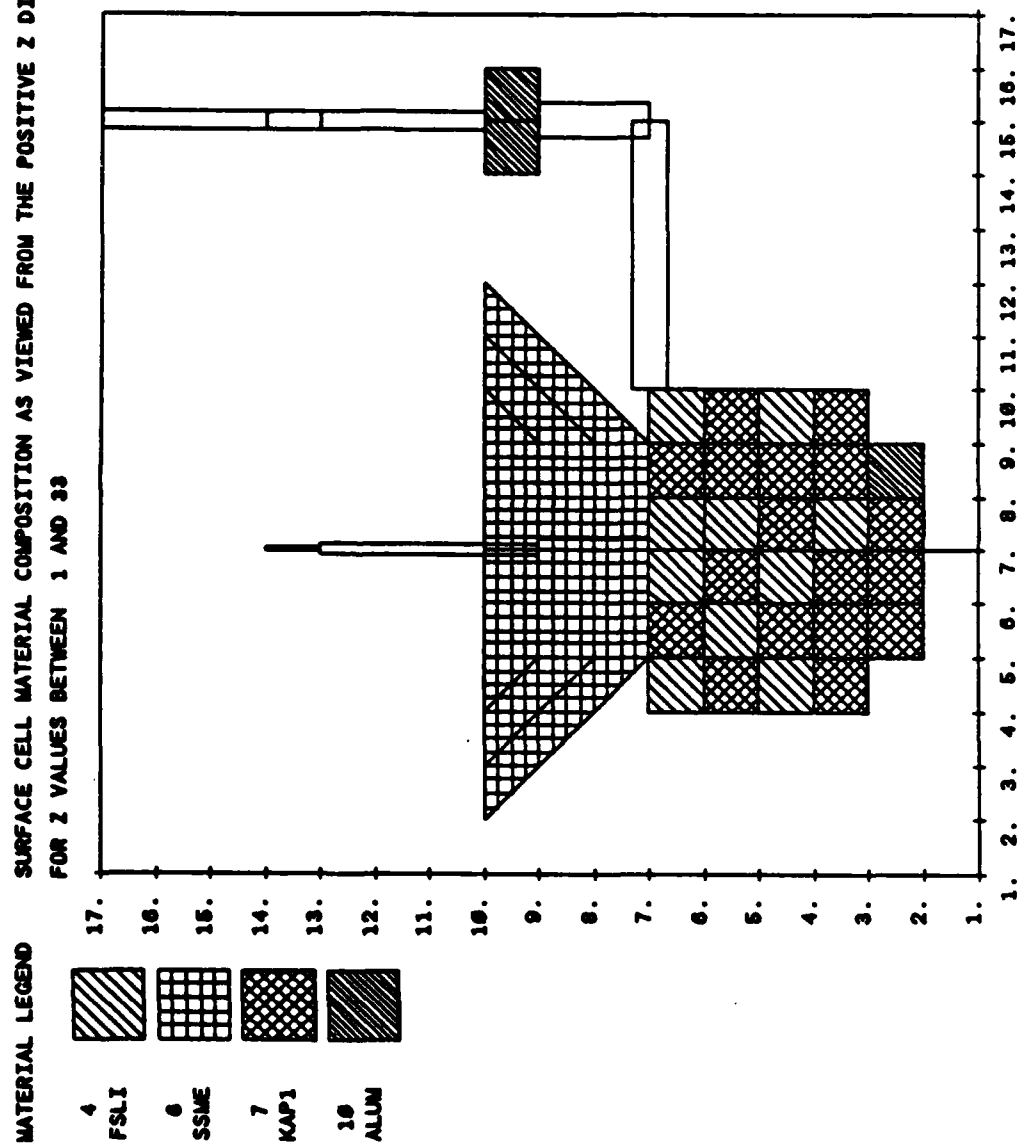


SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE NEGATIVE Y DIRECTION
FOR Y VALUES BETWEEN 1 AND 17

MATERIAL LEGEND

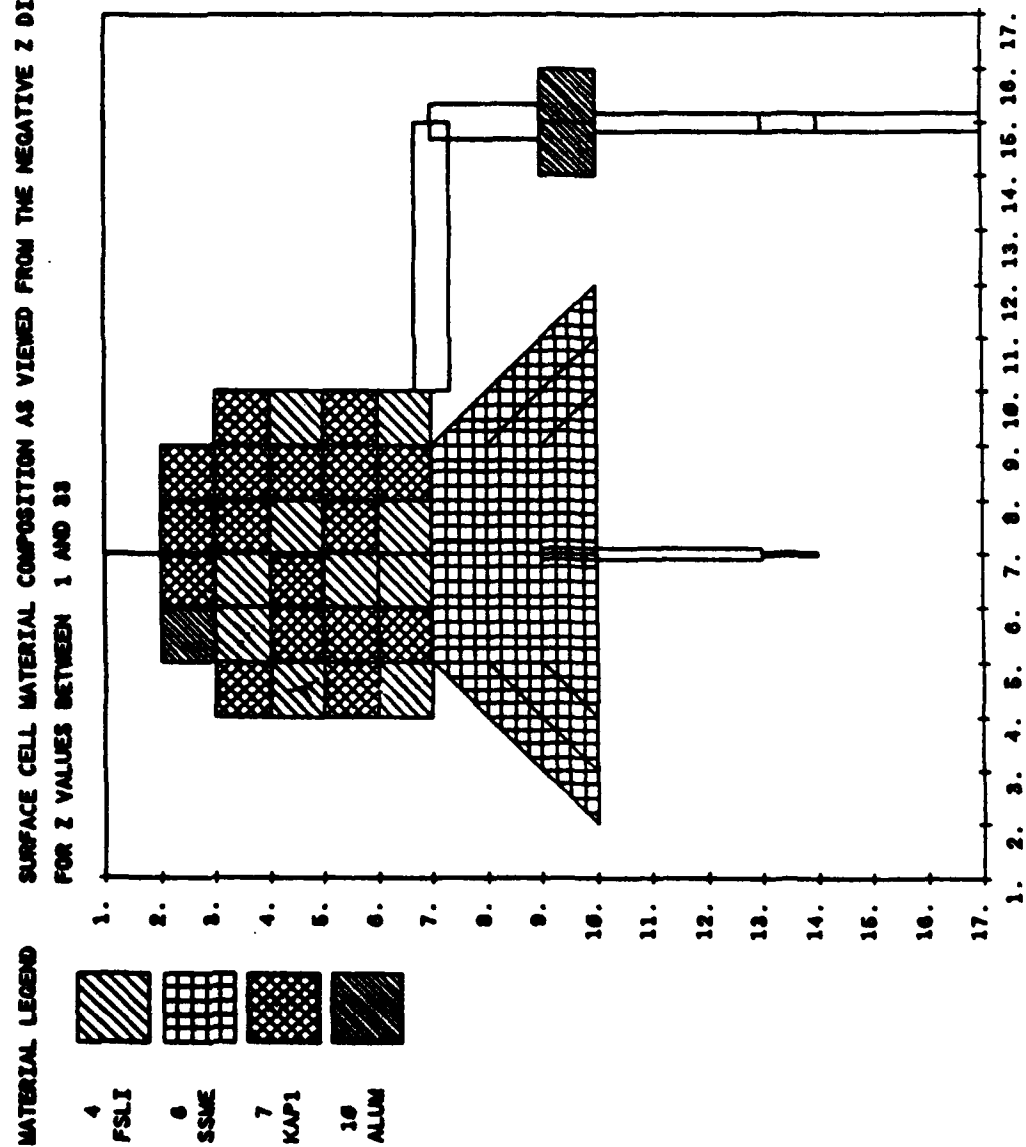


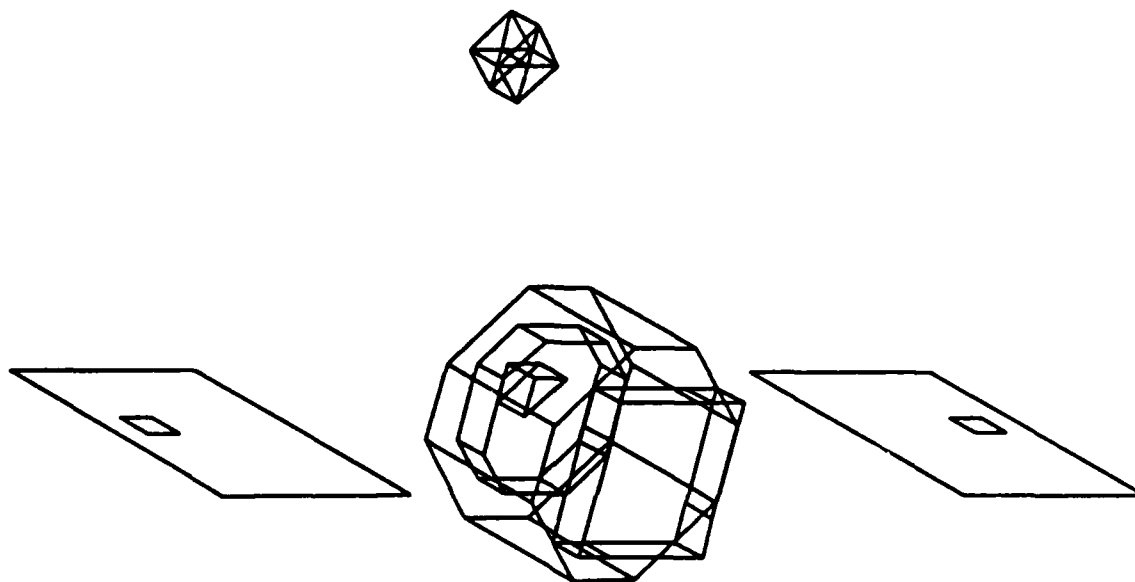
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FOR Z VALUES BETWEEN 1 AND 33

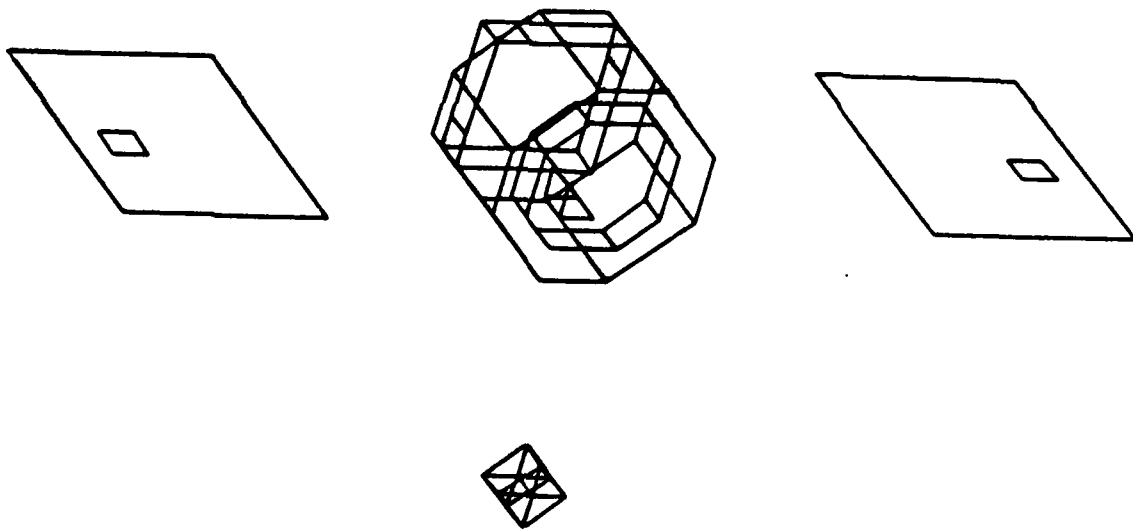


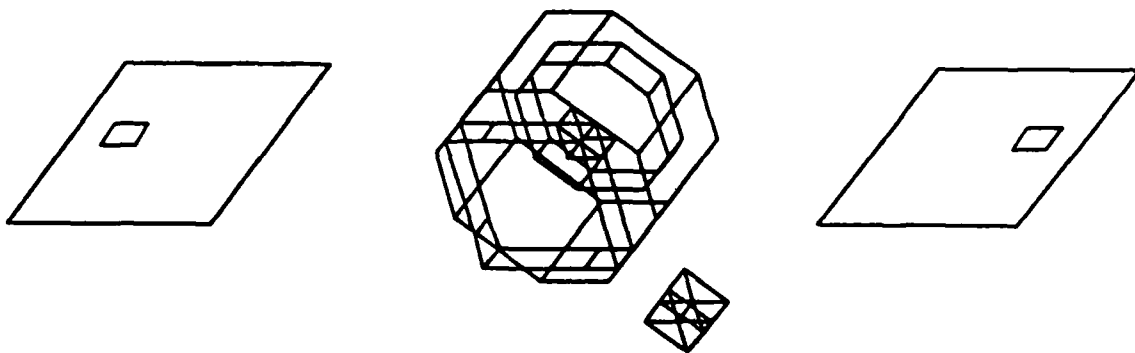
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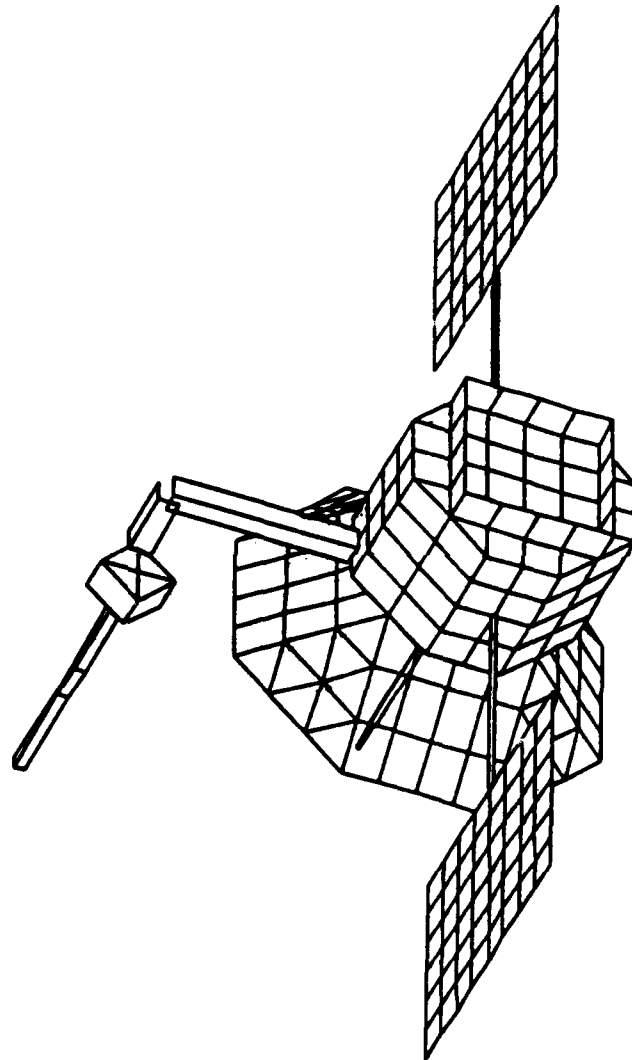
**SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE NEGATIVE Z DIRECTION
FOR Z VALUES BETWEEN 1 AND 83**

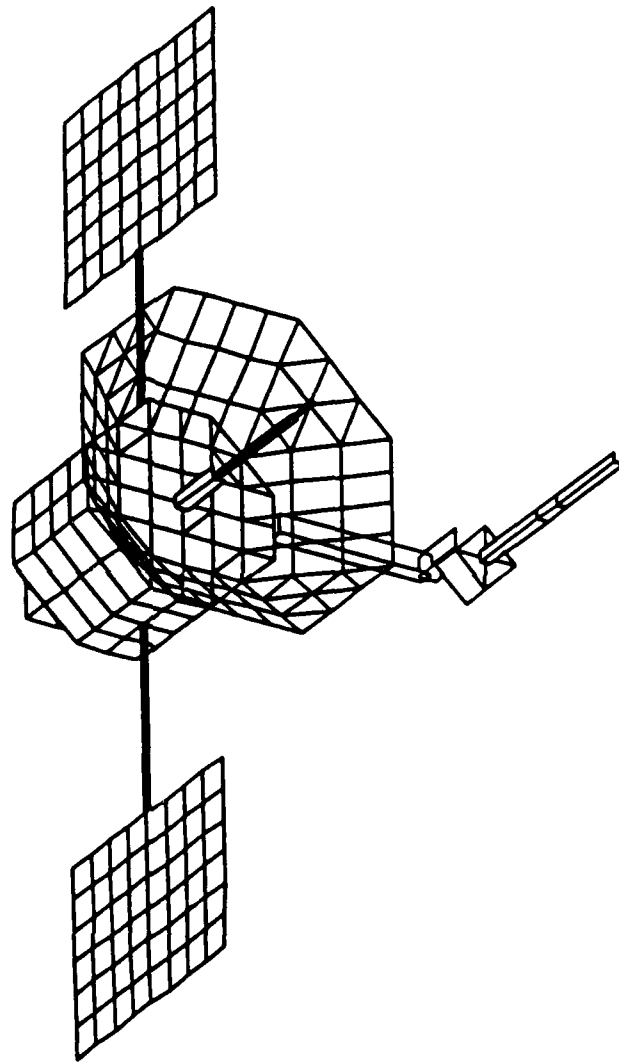


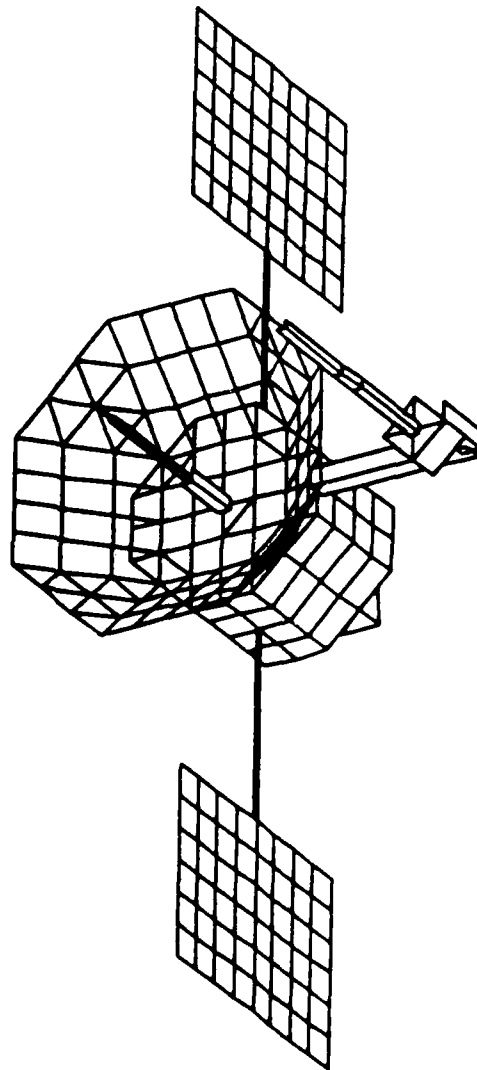












FLTSATCOM IGES File Description: FLTSATCOM.TAP

```

IGES CONSTRUCTION OF FLTSATCOM.PRT
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124      1      1      1      00000002
410      2      1      1      000100 D0000003
410      1      1      00000004
124      3      1      0      000100 D0000005
124      1      1      00000006
410      4      1      5      000100 D0000007
410      1      1      00000008
124      5      1      0      000100 D0000009
124      1      1      00000010
410      6      1      9      000100 D0000011
410      1      1      00000012
124      7      1      0      000100 D0000013
124      1      2      00000014
410      9      1      13     000100 D0000015
410      1      1      00000016
124     10      1      0      000100 D0000017
124      1      1      00000018
410     11      1      17     000100 D0000019
410      1      1      00000020
124     12      1      0      000100 D0000021
124      1      1      00000022
410     13      1      21     000100 D0000023
410      1      1      00000024
124     14      1      0      000100 D0000025
124      1      1      00000026
410     15      1      25     000100 D0000027
410      1      1      00000028
124     16      1      0      000100 D0000029
124      1      2      00000030
410     18      1      29     000100 D0000031
410      1      1      00000032
124     19      1      0      000100 D0000033
124      1      3      00000034
410     22      1      33     000100 D0000035
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124     23      1      0      000100 D0000037
124      1      3      00000038
410     26      1      37     000100 D0000039
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124     27      1      0      000100 D0000041
124      1      3      00000042
410     30      1      41     000100 D0000043
410      1      1      00000044
116     31      2      1      121     0      00000000D0000045
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100     34      2      1      121     0      00010000D0000049
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100     37      2      1      1      0      00010000D0000053
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100     39      2      1      1      0      00010000D0000055
100      0      0      2      00000056
118     41      2      1      8      0      00000000D0000057
118      0      7      1      1      0 SURF (3) 00000058
114     42      2      1      7      0      01000000D0000059
114      0      6      259     0 SURF (4) 00000060
116     301      2      1      111     0      00000000D0000061

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FLTSATCOM IGES File Description: FLTSATCOM.TAP

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118	306	2	1	4	
118	0	3	1	1	
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110	0	0	2		
118	312	2	1	4	
118	0	3	1	1	
116	313	2	1	111	
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110	314	2	1	111	
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110	316	2	1	111	
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118	318	2	1	4	
118	0	3	1	1	
116	319	2	1	111	
116	0	0	1		
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118	324	2	1	4	
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116	325	2	1	111	
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110	0	0	2		
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118	330	2	1	4	
118	0	3	1	1	
116	331	2	1	111	
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118	336	2	1	4	
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116	337	2	1	111	
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118	348	2	1	4	
118	0	3	1	1	
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	SURF (5)	D0000062
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	SURF (7)	D0000070
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	SURF (9)	D0000078
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	SURF (10)	D0000084
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	SURF (11)	D0000086
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	SURF (12)	D0000092
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	SURF (13)	D0000094
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	SURF (15)	D0000102
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	SURF (16)	D0000108
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	SURF (17)	D0000110
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	D0000112	
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	SURF (18)	D0000116
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	SURF (19)	D0000118
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	D0000120	
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	D0000122	
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	SURF (20)	D0000124
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116	0	0	1		SURF (21)	D0000126
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110	352	2	1	111	0	00010000D0000129
110	0	0	2			D0000130
118	354	2	1	4	0	00000000D0000131
118	0	3	1	1	SURF (22)	D0000132
116	355	2	1	111	0	00000000D0000133
116	0	0	1		SURF (23)	D0000134
110	356	2	1	111	0	00010000D0000135
110	0	0	2			D0000136
110	358	2	1	111	0	00010000D0000137
110	0	0	2			D0000138
118	360	2	1	4	0	00000000D0000139
118	0	3	1	1	SURF (24)	D0000140
116	361	2	1	111	0	00000000D0000141
116	0	0	1		SURF (25)	D0000142
110	362	2	1	111	0	00010000D0000143
110	0	0	2			D0000144
110	364	2	1	111	0	00010000D0000145
110	0	0	2			D0000146
118	366	2	1	4	0	00000000D0000147
118	0	3	1	1	SURF (26)	D0000148
116	367	2	1	111	0	00000000D0000149
116	0	0	1		SURF (27)	D0000150
110	368	2	1	111	0	00010000D0000151
110	0	0	2			D0000152
110	370	2	1	111	0	00010000D0000153
110	0	0	2			D0000154
118	372	2	1	4	0	00000000D0000155
118	0	3	1	1	SURF (28)	D0000156
116	373	2	1	111	0	00000000D0000157
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110	374	2	1	111	0	00010000D0000159
110	0	0	2			D0000160
110	376	2	1	111	0	00010000D0000161
110	0	0	2			D0000162
118	378	2	1	4	0	00000000D0000163
118	0	3	1	1	SURF (30)	D0000164
116	379	2	1	112	0	00000000D0000165
116	0	0	1		SURF (31)	D0000166
110	380	2	1	112	0	00010000D0000167
110	0	0	2			D0000168
110	382	2	1	112	0	00010000D0000169
110	0	0	2			D0000170
118	384	2	1	4	0	00000000D0000171
118	0	3	1	1	SURF (32)	D0000172
116	385	2	1	112	0	00000000D0000173
116	0	0	1		SURF (33)	D0000174
110	386	2	1	112	0	00010000D0000175
110	0	0	2			D0000176
110	388	2	1	112	0	00010000D0000177
110	0	0	2			D0000178
118	390	2	1	4	0	00000000D0000179
118	0	3	1	1	SURF (34)	D0000180
116	391	2	1	112	0	00000000D0000181
116	0	0	1		SURF (35)	D0000182
110	392	2	1	112	0	00010000D0000183
110	0	0	2			D0000184
110	394	2	1	112	0	00010000D0000185
110	0	0	2			D0000186
118	396	2	1	4	0	00000000D0000187
118	0	3	1	1	SURF (36)	D0000188
116	397	2	1	112	0	00000000D0000189

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116	0	0	1		SURF (37)	D0000190
110	398	2	1	112	0	00010000D0000191
110	0	0	2			D0000192
110	400	2	1	112	0	00010000D0000193
110	0	0	2			D0000194
118	402	2	1	4	0	00000000D0000195
118	0	3	1	1	SURF (38)	D0000196
116	403	2	1	112	0	00000000D0000197
116	0	0	1		SURF (39)	D0000198
110	404	2	1	112	0	00010000D0000199
110	0	0	2			D0000200
110	406	2	1	112	0	00010000D0000201
110	0	0	2			D0000202
118	408	2	1	4	0	00000000D0000203
118	0	3	1	1	SURF (40)	D0000204
116	409	2	1	112	0	00000000D0000205
116	0	0	1		SURF (41)	D0000206
110	410	2	1	112	0	00010000D0000207
110	0	0	2			D0000208
110	412	2	1	112	0	00010000D0000209
110	0	0	2			D0000210
118	414	2	1	4	0	00000000D0000211
118	0	3	1	1	SURF (42)	D0000212
116	415	2	1	112	0	00000000D0000213
116	0	0	1		SURF (43)	D0000214
110	416	2	1	112	0	00010000D0000215
110	0	0	2			D0000216
110	418	2	1	112	0	00010000D0000217
110	0	0	2			D0000218
118	420	2	1	4	0	00000000D0000219
118	0	3	1	1	SURF (44)	D0000220
116	421	2	1	112	0	00000000D0000221
116	0	0	1		SURF (45)	D0000222
110	422	2	1	112	0	00010000D0000223
110	0	0	2			D0000224
110	424	2	1	112	0	00010000D0000225
110	0	0	2			D0000226
118	426	2	1	4	0	00000000D0000227
118	0	3	1	1	SURF (46)	D0000228
116	427	2	1	112	0	00000000D0000229
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110	428	2	1	112	0	00010000D0000231
110	0	0	2			D0000232
110	430	2	1	112	0	00010000D0000233
110	0	0	2			D0000234
118	432	2	1	4	0	00000000D0000235
118	0	3	1	1	SURF (48)	D0000236
116	433	2	1	112	0	00000000D0000237
116	0	0	1		SURF (49)	D0000238
110	434	2	1	112	0	00010000D0000239
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110	436	2	1	112	0	00010000D0000241
110	0	0	2			D0000242
118	438	2	1	4	0	00000000D0000243
118	0	3	1	1	SURF (50)	D0000244
116	439	2	1	104	0	00000000D0000245
116	0	0	1		SURF (63)	D0000246
110	440	2	1	104	0	00010000D0000247
110	0	0	2			D0000248
110	442	2	1	104	0	00010000D0000249
110	0	0	2			D0000250
118	444	2	1	11	0	00000000D0000251
118	0	9	1	1	SURF (64)	D0000252
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110	0	9	2				D0000254
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110	0	9	2				D0000256
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118	0	6	1	1		SURF (65)	D0000258
116	450	2	1	104	0	00000000D0000259	
116	0	0	1			SURF (66)	D0000260
110	451	2	1	104	0	00010000D0000261	
110	0	0	2				D0000262
110	453	2	1	104	0	00010000D0000263	
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118	455	2	1	11	0	00000000D0000265	
118	0	9	1	1		SURF (67)	D0000266
110	456	2	1	11	0	00010000D0000267	
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118	460	2	1	8	0	00000000D0000271	
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118	466	2	1	3	0	00000000D0000279	
118	0	2	1	1		SURF (76)	D0000280
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110	468	2	1	102	0	00010000D0000283	
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118	0	7	1	1		SURF (78)	D0000288
110	473	2	1	8	0	00010000D0000289	
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118	477	2	1	9	0	00000000D0000293	
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110	478	2	1	9	0	00010000D0000295	
110	0	8	2				D0000296
110	480	2	1	9	0	00010000D0000297	
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116	482	2	1	106	0	00000000D0000299	
116	0	0	1			SURF (80)	D0000300
118	483	2	1	6	0	00000000D0000301	
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110	484	2	1	6	0	00010000D0000303	
110	0	5	2				D0000304
110	486	2	1	6	0	00010000D0000305	
110	0	5	2				D0000306
116	488	2	1	106	0	00000000D0000307	
116	0	0	1			SURF (82)	D0000308
118	489	2	1	6	0	00000000D0000309	
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110	0	5	2				D0000312
110	492	2	1	6	0	00010000D0000313	
110	0	5	2				D0000314
116	494	2	1	106	0	00000000D0000315	
116	0	0	1			SURF (84)	D0000316
118	495	2	1	6	0	00000000D0000317	

FLTSATCOM IGES File Description: FLTSATCOM.TAP

118	0	5	1	1	SURF (85)	D0000318
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116	0	0	1		SURF (88)	D0000320
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110	0	0	2			D0000322
110	499	2	1	107	0	00010000D0000323
110	0	0	2			D0000324
118	501	2	1	6	0	00000000D0000325
118	0	5	1	1	SURF (89)	D0000326
116	502	2	1	107	0	00000000D0000327
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110	503	2	1	107	0	00010000D0000329
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110	0	0	2			D0000332
118	507	2	1	6	0	00000000D0000333
118	0	5	1	1	SURF (91)	D0000334
116	508	2	1	107	0	00000000D0000335
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110	509	2	1	107	0	00010000D0000337
110	0	0	2			D0000338
110	511	2	1	107	0	00010000D0000339
110	0	0	2			D0000340
118	513	2	1	6	0	00000000D0000341
118	0	5	1	1	SURF (93)	D0000342
116	514	2	1	107	0	00000000D0000343
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110	515	2	1	107	0	00010000D0000345
110	0	0	2			D0000346
110	517	2	1	107	0	00010000D0000347
110	0	0	2			D0000348
118	519	2	1	6	0	00000000D0000349
118	0	5	1	1	SURF (95)	D0000350
116	520	2	1	109	0	00000000D0000351
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110	521	2	1	3	0	00010000D0000353
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110	522	2	1	3	1	00010000D0000355
110	0	2	1		SURF (97)	D0000356
120	523	2	1	3	1	00000000D0000357
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116	524	2	1	109	0	00000000D0000359
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110	525	2	1	10	0	00010000D0000361
110	0	9	1			D0000362
110	526	2	1	10	1	00010000D0000363
110	0	9	1		SURF (99)	D0000364
120	527	2	1	10	1	00000000D0000365
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116	528	2	1	109	0	00000000D0000367
116	0	0	1		SURF (100)	D0000368
110	529	2	1	3	0	00010000D0000369
110	0	2	1			D0000370
110	530	2	1	3	1	00010000D0000371
110	0	2	1		SURF (101)	D0000372
120	531	2	1	3	1	00000000D0000373
120	0	2	1		SURF (101)	D0000374
116	532	2	1	111	0	00000000D0000375
116	0	0	1		SURF (102)	D0000376
110	533	2	1	111	0	00010000D0000377
110	0	0	2			D0000378
110	535	2	1	111	0	00010000D0000379
110	0	0	2			D0000380
118	537	2	1	11	0	00000000D0000381

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118	0	10	1	1	SURF(103	D0000382
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110	539	2	1	3	0	00010000D0000385
110	0	2	1			D0000386
110	540	2	1	3	1	00010000D0000387
110	0	2	1		SURF(105	D0000388
120	541	2	1	3	1	00000000D0000389
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116	542	2	1	109	0	00000000D0000391
116	0	0	1		SURF(106	D0000392
110	543	2	1	10	0	00010000D0000393
110	0	9	1			D0000394
110	544	2	1	10	1	00010000D0000395
110	0	9	1		SURF(107	D0000396
120	545	2	1	10	1	00000000D0000397
120	0	9	1		SURF(107	D0000398
116	546	2	1	109	0	00000000D0000399
116	0	0	1		SURF(108	D0000400
110	547	2	1	3	0	00010000D0000401
110	0	2	1			D0000402
110	548	2	1	3	1	00010000D0000403
110	0	2	1		SURF(109	D0000404
120	549	2	1	3	1	00000000D0000405
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116	550	2	1	109	0	00000000D0000407
116	0	0	1		SURF(110	D0000408
110	551	2	1	2	0	00010000D0000409
110	0	1	1			D0000410
110	552	2	1	2	1	00010000D0000411
110	0	1	1		SURF(111	D0000412
120	553	2	1	2	1	00000000D0000413
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116	554	2	1	109	0	00000000D0000415
116	0	0	1		SURF(112	D0000416
110	555	2	1	2	0	00010000D0000417
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110	0	1	1		SURF(113	D0000420
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116	558	2	1	102	0	00000000D0000423
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110	559	2	1	102	0	00010000D0000425
110	0	0	2			D0000426
110	561	2	1	102	0	00010000D0000427
110	0	0	2			D0000428
118	563	2	1	10	0	00000000D0000429
118	0	9	1	1	SURF(115	D0000430
110	564	2	1	10	0	00010000D0000431
110	0	9	2			D0000432
110	566	2	1	10	0	00010000D0000433
110	0	9	2			D0000434
118	568	2	1	10	0	00000000D0000435
118	0	9	1	1	SURF(116	D0000436
110	569	2	1	10	0	00010000D0000437
110	0	9	2			D0000438
110	571	2	1	10	0	00010000D0000439
110	0	9	2			D0000440
118	573	2	1	10	0	00000000D0000441
118	0	9	1	1	SURF(117	D0000442
110	574	2	1	10	0	00010000D0000443
110	0	9	2			D0000444
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110	0	9	2				D0000446
118	578	2	1	10	0	00000000D0000447	
118	0	9	1	1		SURF(118	D0000448
110	579	2	1	10	0	00010000D0000449	
110	0	9	2				D0000450
110	581	2	1	10	0	00010000D0000451	
110	0	9	2				D0000452
118	583	2	1	10	0	00000000D0000453	
118	0	9	1	1		SURF(119	D0000454
116	584	2	1	102	0	00000000D0000455	
116	0	0	1			SURF(120	D0000456
110	585	2	1	102	0	00010000D0000457	
110	0	0	2				D0000458
110	587	2	1	102	0	00010000D0000459	
110	0	0	2				D0000460
118	589	2	1	10	0	00000000D0000461	
118	0	9	1	1		SURF(121	D0000462
110	590	2	1	10	0	00010000D0000463	
110	0	9	2				D0000464
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\032	
\032	

FLTSATCOM Object Building Block File: FLTSATCOM.OBB

```

CONDUCTOR      0 0 0
CONDUCTOR      1
OCTAGON
axis           7           3           17           7           7           17
width          6
side           2
surface + MA01
surface - MA08
surface + MA07
endobj
CONDUCTOR      1
PATCHR
corner         4           3           17
deltas         1           1           1
surface -x MA04
endobj
CONDUCTOR      1
PATCHR
corner         9           3           17
deltas         1           1           1
surface +x MA04
endobj
CONDUCTOR      1
PATCHR
corner         9           5           16
deltas         1           1           1
surface +x MA04
endobj
CONDUCTOR      1
PATCHR
corner         6           6           14
deltas         1           1           1
surface -z MA04
endobj
CONDUCTOR      1
PATCHR
corner         7           6           14
deltas         1           1           1
surface -z MA04
endobj
CONDUCTOR      1
PATCHR
corner         7           5           14
deltas         1           1           1
surface -z MA04
endobj
CONDUCTOR      1
PATCHR
corner         6           4           14
deltas         1           1           1
surface -z MA04
endobj
CONDUCTOR      1
PATCHR
corner         7           3           14
deltas         1           1           1
surface -z MA04
endobj
CONDUCTOR      1
PATCHR
corner         6           3           19
deltas         1           1           1
surface +z MA04
endobj

```

FLTSATCOM Object Building Block File: FLTSATCOM.OBB

CONDUCTOR	1		
PATCHR			
corner	7	4	19
deltas	1	1	1
surface +z MA04			
endobj			
CONDUCTOR	1		
PATCHR			
corner	6	5	19
deltas	1	1	1
surface +z MA04			
endobj			
CONDUCTOR	1		
PATCHR			
corner	6	6	19
deltas	1	1	1
surface +z MA04			
endobj			
CONDUCTOR	1		
PATCHR			
corner	7	6	19
deltas	1	1	1
surface +z MA04			
endobj			
CONDUCTOR	1		
PATCHW			
corner	6	3	15
face MA04 -1 0 -1			
length	1	1	1
endobj			
CONDUCTOR	1		
PATCHW			
corner	5	4	16
face MA04 -1 0 -1			
length	1	1	1
endobj			
CONDUCTOR	1		
PATCHW			
corner	5	6	16
face MA04 -1 0 -1			
length	1	1	1
endobj			
CONDUCTOR	1		
PATCHW			
corner	5	4	18
face MA04 -1 0 1			
length	1	1	1
endobj			
CONDUCTOR	1		
PATCHW			
corner	5	6	18
face MA04 -1 0 1			
length	1	1	1
endobj			
CONDUCTOR	1		
PATCHW			
corner	6	5	19
face MA04 -1 0 1			
length	1	1	1
endobj			
CONDUCTOR	1		
PATCHW			
corner	9	4	18
face MA04 1 0 1			

FLTSATCOM Object Building Block File: FLTSATCOM.OBB

[illegible]

FLTSATCOM Object Building Block File: FLTSATCOM.OBB

length	4	3	3			
endobj						
CONDUCTOR	1					
ATET						
corner	5	10	15			
face MA06 -1 -1 -1						
length	3					
endobj						
CONDUCTOR	1					
ATET						
corner	5	10	19			
face MA06 -1 -1 1						
length	3					
endobj						
CONDUCTOR	1					
ATET						
corner	9	10	19			
face MA06 1 -1 1						
length	3					
endobj						
CONDUCTOR	1					
ATET						
corner	9	10	15			
face MA06 1 -1 -1						
length	3					
endobj						
CONDUCTOR	1					
BOOM						
axis	7	7	17	7	9	17
adius 0.2180						
surface MA03						
endobj						
CONDUCTOR	1					
BOOM						
axis	7	9	17	7	13	17
adius 0.8300E-01						
surface MA10						
endobj						
CONDUCTOR	1					
BOOM						
axis	7	13	17	7	14	17
adius 0.4160E-01						
surface MA03						
endobj						
CONDUCTOR	1					
PATCHR						
corner	7	3	17			
deltas	1	1	1			
surface -y MA11						
endobj						
CONDUCTOR	1					
BOOM						
axis	15	10	18	15	13	18
adius 0.1670						
surface MA03						
endobj						
CONDUCTOR	1					
BOOM						
axis	15	13	18	15	14	18
adius 0.1670						
surface MA10						
endobj						
CONDUCTOR	1					
BOOM						

FLTSATCOM Object Building Block File: FLTSATCOM.OBB

axis	15	14	18	15	17	18
adius 0.1670						
surface MA03						
endobj						
CONDUCTOR	1					
BOOM						
axis	10	7	17	15	7	17
adius 0.3330						
surface MA02						
endobj						
CONDUCTOR	1					
BOOM						
axis	15	7	17	15	9	17
adius 0.3330						
surface MA02						
endobj						
CONDUCTOR	1					
WEDGE						
corner	15	9	18			
face MA10 -1 0 1						
length	1	1	1			
surface -z MA10						
surface +x MA10						
surface -y MA10						
surface +y MA10						
endobj						
CONDUCTOR	1					
WEDGE						
corner	15	9	18			
face MA10 1 0 1						
length	1	1	1			
surface -z MA10						
surface -x MA10						
surface -y MA10						
surface +y MA10						
endobj						
CONDUCTOR	1					
WEDGE						
corner	15	9	18			
face MA10 1 0 -1						
length	1	1	1			
surface +z MA10						
surface -x MA10						
surface -y MA10						
surface +y MA10						
endobj						
CONDUCTOR	1					
WEDGE						
corner	15	9	18			
face MA10 -1 0 -1						
length	1	1	1			
surface +z MA10						
surface +x MA10						
surface -y MA10						
surface +y MA10						
endobj						
CONDUCTOR	1					
PLATE						
corner	7	1	26			
deltas	0	8	6			
bottom -x MA04						
top +x MA05						
endobj						
CONDUCTOR	1					

FLTSATCOM Object Building Block File: FLTSATCOM.OBB

PLATE									
corner	7	1	2						
deltas	0	8	6						
bottom -x MA04									
top +x MA05									
endobj									
CONDUCTOR	1								
PLATE									
corner	7	5	3						
deltas	0	1	1						
bottom -x MA07									
top +x MA05									
endobj									
CONDUCTOR	1								
PLATE									
corner	7	5	30						
deltas	0	1	1						
bottom -x MA07									
top +x MA05									
endobj									
CONDUCTOR	1								
BOOM									
axis	7	5	20	7	5	26			
adius 0.6000E-01									
surface MA02									
endobj									
CONDUCTOR	1								
BOOM									
axis	7	5	14	7	5	8			
adius 0.6000E-01									
surface MA02									
endobj									
CONDUCTOR	1								
ASLANT									
corner	2	7	15						
face MA06	1	1	0						
length	3	3	4						
endobj									
CONDUCTOR	1								
PLATE									
corner	5	2	15						
deltas	0	1	3						
bottom -x MA10									
top +x MA07									
endobj									
CONDUCTOR	1								
PLATE									
corner	5	2	19						
deltas	0	1	1						
bottom -x MA10									
top +x MA10									
endobj									
CONDUCTOR	1								
PLATE									
corner	9	2	15						
deltas	0	1	1						
bottom +x MA10									
top -x MA10									
endobj									
CONDUCTOR	1								
PLATE									
corner	9	2	16						
deltas	0	1	3						
bottom +x MA10									

FLTSATCOM Object Building Block File: FLTSATCOM.OBB

```
top -x      MA07
endobj
CONDUCTOR           1
PLATE
corner          5          2          15
deltas          1          1          0
bottom -z MA10
top +z      MA10
endobj
CONDUCTOR           1
PLATE
corner          6          2          15
deltas          3          1          0
bottom -z MA10
top +z      MA07
endobj
ENDSAT
```

FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

COMMENT This is an Object Definition File
COMMENT Problem is FLTSATCOM
COMMENT TAP file prefix was FLTSATCOM
COMMENT More problem oriented information can be
COMMENT found in: FLTSATCOM.PRB
COMMENT KAP2TN
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT RED KAP2 03/10/87
COMMENT FLTSATCOM material for MA01
KAP2
0.350E+01,0.127E-04,0.100E-15,0.500E+01,0.210E+01,0.150E+00,0.715E+02,0.600E+00,
0.312E+03,0.177E+01,0.455E+00,0.140E+03,0.200E-04,0.790E+21,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,
COMMENT LFALUM
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT GREEN LFAL 03/10/87
COMMENT FLTSATCOM material for MA02
LFAL
0.350E+01,0.254E-04,0.123E-07,0.500E+01,0.210E+01,0.150E+00,0.715E+02,0.600E+00,
0.312E+03,0.177E+01,0.455E+00,0.140E+03,0.200E-04,0.320E+13,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,
COMMENT S13GLO
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT YELLOW S13G 03/10/87
COMMENT FLTSATCOM material for MA03
S13G
0.350E+01,0.102E-03,0.650E-09,0.500E+01,0.210E+01,0.150E+00,-.100E+01,0.000E+00,
0.105E+01,0.980E+01,0.455E+00,0.140E+03,0.200E-04,0.150E+14,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,
COMMENT FSLICA
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT BLUE FSLI 03/10/87
COMMENT FLTSATCOM material for MA04
FSLI
0.400E+01,0.152E-03,0.100E-13,0.100E+02,0.240E+01,0.400E+00,0.116E+03,0.810E+00,
0.183E+03,0.186E+01,0.455E+00,0.140E+03,0.200E-04,0.658E+18,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,
COMMENT BLKVEL
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT MAGENTA BLKV 03/10/87
COMMENT FLTSATCOM material for MA05
BLKV
0.350E+01,0.508E-04,0.140E-07,0.500E+01,0.210E+01,0.150E+00,0.715E+02,0.600E+00,
0.312E+03,0.177E+01,0.455E+00,0.140E+03,0.200E-04,0.140E+13,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,
COMMENT SSMESH
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT CYAN SSME 03/10/87
COMMENT FLTSATCOM material for MA06
SSME
0.100E+01,0.100E-02,-.100E+01,0.470E+02,0.100E+01,0.800E+00,0.845E+02,0.820E+00,
0.794E+02,0.174E+01,0.490E+00,0.123E+03,0.290E-04,-.100E+01,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,
COMMENT KAP1TN
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT WHITE KAP1 03/10/87
COMMENT FLTSATCOM material for MA07
KAP1
0.350E+01,0.508E-04,0.100E-15,0.500E+01,0.210E+01,0.150E+00,0.715E+02,0.600E+00,
0.312E+03,0.177E+01,0.455E+00,0.140E+03,0.200E-04,0.200E+21,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,
COMMENT KAP3TN
COMMENT From Dir SYSSSYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]
COMMENT WHITE KAP3 03/10/87

FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

COMMENT FLTSATCOM material for MA08

KAP3

0.350E+01,0.127E-03,0.100E-15,0.500E+01,0.210E+01,0.150E+00,0.715E+02,0.600E+00,
0.312E+03,0.177E+01,0.455E+00,0.140E+03,0.200E-04,0.790E+20,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,

COMMENT EHFPR

COMMENT From Dir SYS\$SYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]

COMMENT WHITE EHF 03/10/87

COMMENT FLTSATCOM material for MA09

EHFP

0.100E+01,0.100E-02,-.100E+01,0.244E+02,0.140E+01,0.800E+00,-.100E+01,0.000E+00,
0.718E+01,0.555E+02,0.490E+00,0.123E+03,0.320E-04,-.100E+01,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,

COMMENT ALUM

COMMENT From Dir SYS\$SYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]

COMMENT WHITE ALUM 03/10/87

COMMENT FLTSATCOM material for MA10

ALUM

0.100E+01,0.100E-02,-.100E+01,0.130E+02,0.970E+00,0.300E+00,0.154E+03,0.800E+00,
0.220E+03,0.176E+01,0.244E+00,0.230E+03,0.400E-04,-.100E+01,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,

COMMENT CPHENL

COMMENT From Dir SYS\$SYSDEVICE:[LILLEY.CAETS.PROBLEMS.FLTSATCOM]

COMMENT WHITE CPHE 03/10/87

COMMENT FLTSATCOM material for MA11

CPHE

0.350E+01,0.508E-02,0.100E-09,0.700E+01,0.300E+01,0.300E+00,0.454E+02,0.400E+00,
0.218E+03,0.177E+01,0.455E+00,0.140E+03,0.200E-04,0.100E+11,.1000E+05,.2000E+04,
0.100000E-12, 0.100000E+01, 0.100000E+04, 0.200000E+02,

OFFSET 0 0 0

CONDUCTOR 1

OCTAGON

axis 7 3 17 7 7 17

width 6

side 2

surface + KAP2

surface - KAP3

surface c KAP1

endobj

CONDUCTOR 1

PATCHR

corner 4 3 17

deltas 1 1 1

surface -x FSLI

endobj

CONDUCTOR 1

PATCHR

corner 9 3 17

deltas 1 1 1

surface +x FSLI

endobj

CONDUCTOR 1

PATCHR

corner 9 5 16

deltas 1 1 1

surface +x FSLI

endobj

CONDUCTOR 1

PATCHR

corner 6 6 14

deltas 1 1 1

surface -z FSLI

endobj

CONDUCTOR 1

FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

PATCHR			
corner	7	6	14
deltas	1	1	1
surface -z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	7	5	14
deltas	1	1	1
surface -z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	6	4	14
deltas	1	1	1
surface -z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	7	3	14
deltas	1	1	1
surface -z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	6	3	19
deltas	1	1	1
surface +z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	7	4	19
deltas	1	1	1
surface +z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	6	5	19
deltas	1	1	1
surface +z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	6	6	19
deltas	1	1	1
surface +z FSLI			
endobj			
CONDUCTOR	1		
PATCHR			
corner	7	6	19
deltas	1	1	1
surface +z FSLI			
endobj			
CONDUCTOR	1		
PATCHW			
corner	6	3	15
face FSLI -1 0 -1			
length	1	1	1
endobj			
CONDUCTOR	1		
PATCHW			
corner	5	4	16
face FSLI -1 0 -1			
length	1	1	1

FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

```

endobj
CONDUCTOR          1
PATCHW
corner             5           6           16
face    FSLI -1  0 -1
length            1           1           1
endobj
CONDUCTOR          1
PATCHW
corner             5           4           18
face    FSLI -1  0  1
length            1           1           1
endobj
CONDUCTOR          1
PATCHW
corner             5           6           18
face    FSLI -1  0  1
length            1           1           1
endobj
CONDUCTOR          1
PATCHW
corner             6           5           19
face    FSLI -1  0  1
length            1           1           1
endobj
CONDUCTOR          1
PATCHW
corner             9           4           18
face    FSLI  1  0  1
length            1           1           1
endobj
CONDUCTOR          1
PATCHW
corner             9           6           18
face    FSLI  1  0  1
length            1           1           1
endobj
CONDUCTOR          1
PATCHW
corner             9           4           16
face    FSLI  1  0 -1
length            1           1           1
endobj
CONDUCTOR          1
PATCHW
corner             9           6           16
face    FSLI  1  0 -1
length            1           1           1
endobj
CONDUCTOR          1
PLATE
corner             5           2           19
deltas            3           1           0
bottom -z ALUM
top  +z    KAP1
endobj
CONDUCTOR          1
PLATE
corner             8           2           19
deltas            1           1           0
bottom -z ALUM
top  +z    ALUM
endobj
CONDUCTOR          1

```


FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

OCTAGON						
axis	7	6	17	7	7	17
width	4					
side	2					
surface + S13G						
endobj						
CONDUCTOR	1					
WEDGE						
corner	8	6	18			
face KAP3 -1 0 -1						
length	1	1	1			
surface +z EHFP						
endobj						
CONDUCTOR	1					
ASLANT						
corner	9	10	15			
face SSME	1	-1	0			
length	3	3	4			
endobj						
CONDUCTOR	1					
ASLANT						
corner	5	7	12			
face SSME	0	1	1			
length	4	3	3			
endobj						
CONDUCTOR	1					
ASLANT						
corner	5	7	22			
face SSME	0	1	-1			
length	4	3	3			
endobj						
CONDUCTOR	1					
ATET						
corner	5	10	15			
face SSME -1 -1 -1						
length	3					
endobj						
CONDUCTOR	1					
ATET						
corner	5	10	19			
face SSME -1 -1 1						
length	3					
endobj						
CONDUCTOR	1					
ATET						
corner	9	10	19			
face SSME 1 -1 1						
length	3					
endobj						
CONDUCTOR	1					
ATET						
corner	9	10	15			
face SSME 1 -1 -1						
length	3					
endobj						
CONDUCTOR	1					
BOOM						
axis	7	7	17	7	9	17
radius 0.2180						
surface S13G						
endobj						
CONDUCTOR	1					
BOOM						
axis	7	9	17	7	13	17

FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

```

radius 0.8300E-01
surface ALUM
endobj
CONDUCTOR 1
BOOM
axis 7 13 17 7 14 17
radius 0.4160E-01
surface S13G
endobj
CONDUCTOR 1
PATCHR
corner 7 3 17
deltas 1 1 1
surface -y CPHE
endobj
CONDUCTOR 1
BOOM
axis 15 10 18 15 13 18
radius 0.1670
surface S13G
endobj
CONDUCTOR 1
BOOM
axis 15 13 18 15 14 18
radius 0.1670
surface ALUM
endobj
CONDUCTOR 1
BOOM
axis 15 14 18 15 17 18
radius 0.1670
surface S13G
endobj
CONDUCTOR 1
BOOM
axis 10 7 17 15 7 17
radius 0.3330
surface LFAL
endobj
CONDUCTOR 1
BOOM
axis 15 7 17 15 9 17
radius 0.3330
surface LFAL
endobj
CONDUCTOR 1
WEDGE
corner 15 9 18
face ALUM -1 0 1
length 1 1 1
surface -z ALUM
surface -x ALUM
surface -y ALUM
surface +y ALUM
endobj
CONDUCTOR 1
WEDGE
corner 15 9 18
face ALUM 1 0 1
length 1 1 1
surface -z ALUM
surface -x ALUM
surface -y ALUM
surface +y ALUM

```

FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

```

endobj
CONDUCTOR          1
WEDGE
corner             15          9          18
face  ALUM  1  0 -1
length            1          1          1
surface +z ALUM
surface -x ALUM
surface -y ALUM
surface +y ALUM
endobj
CONDUCTOR          1
WEDGE
corner             15          9          18
face  ALUM -1  0 -1
length            1          1          1
surface +z ALUM
surface +x ALUM
surface -y ALUM
surface +y ALUM
endobj
CONDUCTOR          1
PLATE
corner             7          1          26
deltas            0          8          6
bottom -x FSLI
top +x  BLKV
endobj
CONDUCTOR          1
PLATE
corner             7          1          2
deltas            0          8          6
bottom -x FSLI
top +x  BLKV
endobj
CONDUCTOR          1
PLATE
corner             7          5          3
deltas            0          1          1
bottom -x KAP1
top +x  BLKV
endobj
CONDUCTOR          1
PLATE
corner             7          5          30
deltas            0          1          1
bottom -x KAP1
top +x  BLKV
endobj
CONDUCTOR          1
BOOM
axis               7          5          20          7          5          26
radius  0.6000E-01
surface LFAL
endobj
CONDUCTOR          1
BOOM
axis               7          5          14          7          5          8
radius  0.6000E-01
surface LFAL
endobj
CONDUCTOR          1
ASLANT
corner            2          7          15

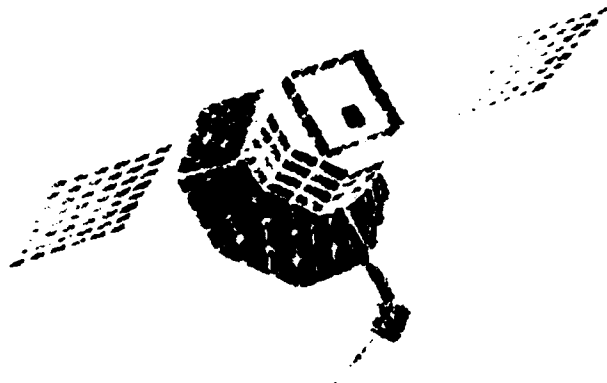
```

FLTSATCOM NASCAP Object Definition File: FLTSATCOM.ODF

```

face SSME          1          1          0
length            3          3          4
endobj
CONDUCTOR          1
PLATE
corner            5          2          15
deltas            0          1          3
bottom -x ALUM
top +x KAP1
endobj
CONDUCTOR          1
PLATE
corner            5          2          18
deltas            0          1          1
bottom -x ALUM
top +x ALUM
endobj
CONDUCTOR          1
PLATE
corner            9          2          15
deltas            0          1          1
bottom +x ALUM
top -x ALUM
endobj
CONDUCTOR          1
PLATE
corner            9          2          16
deltas            0          1          3
bottom +x ALUM
top -x KAP1
endobj
CONDUCTOR          1
PLATE
corner            5          2          15
deltas            1          1          0
bottom -z ALUM
top +z ALUM
endobj
CONDUCTOR          1
PLATE
corner            6          2          15
deltas            3          1          0
bottom -z ALUM
top +z KAP1
endobj
ENDSAT

```



1.00E+00

3.50E+00

6.00E+00

8.50E+00

1.10E+01

FUNCTION
IRINEFS

WORLDWIDE JOURNAL OF SCIENCE

FLTSATCOM NASCAP Run Deck

```
rdopt 5
      nz 33
      ng 2
      ncyc 3
      sundir 1 .1 -.2
      sunint 1.
      longtimestep
      delta 60.
      Timer
      end
objdef 20
Hidcel
Capaci
Trilin
end
```

STANDARD Default Environment File: F00022.DAT

MAXWELL

1.0000E+06 NKS

0.0000E+00 NKS

1.5000E+04 EV

0.0000E+00 EV

END

FLTSATCOM NASCAP Results

KEYWORD INPUT

```

07 33
08 2
09 3
10 3
11 1 1 -2
12 1
13 longtimestep
14 delta 60
15 Timer
16 end
17 CLOSE CALLED FOR LUN- 26
18 Opens called for lun 21
19 Calling asgfill for Non-Readms version
20 FILE OPENED FOR DIRECT ACCESS. FILE: 21
21 FILE OPENED FOR DIRECT ACCESS. FILE: 10
22 SCRATCH DIRECT ACCESS FILE OPENED FOR UNIT: 11
23 SCRATCH DIRECT ACCESS FILE OPENED FOR UNIT: 12
24 SCRATCH DIRECT ACCESS FILE OPENED FOR UNIT: 25
25 SCRATCH DIRECT ACCESS FILE OPENED FOR UNIT: 13
26 SCRATCH DIRECT ACCESS FILE OPENED FOR UNIT: 14
27 FILE OPENED FOR DIRECT ACCESS. FILE: 15
28 FILE OPENED FOR DIRECT ACCESS. FILE: 19
29 SCRATCH DIRECT ACCESS FILE OPENED FOR UNIT: 18
30 FILE OPENED FOR DIRECT ACCESS. FILE: 17
31 FILE OPENED FOR DIRECT ACCESS. FILE: 16
32 FILE OPENED FOR DIRECT ACCESS. FILE: 21
33 SCRATCH DIRECT ACCESS FILE OPENED FOR UNIT: 28
34 FILE OPENED FOR DIRECT ACCESS. FILE: 27

```

*****:dopt 26

NASA CHARGING ANALYZER PROGRAM OPTION SUMMARY

[illegible]

FULL OUTER GRID USED
 ADDITIONAL OPTION WORDS: OFFSET, TANKSIZE, 2TRUNC, TANK RADIUS, TANK AXIS

INPUT FILES:	KEYWD	ISAT	IFLUX	ISPCTR
	26	20	22	9

SCRATCH FILES:	IAUN	IR	IDIV	IU	ISARE	IOBJ	IOBPLT	IPART
	11	12	25	13	14	16	19	24

DELTA	DELTA
6.00E+01	1.00E+00

```
POTENTIAL SOLVE: OPTIONS: POTCON MAXITR IOUTER SCALE
                        NOTSET 99 2 SCAL.
                        SCALING KEYWORDS: SCALE, NOSCALE, DSCALE
                        AMBIENT SPACE CHARGE OPTION (KEYWORD DEBYE)=NONE
```

CAPACITANCES: KEYWORD C1J
 THE CODE UNIT OF CHARGE IS 0.054E-13 COULOMBS.
 THE CODE UNIT OF CAPACITANCE IS 0.05E-13 FARADS.
 NO INTERCONDUCTOR CAPACITANCES SPECIFIED

LONGTIMESTEP AND DISCHARGE OPTIONS
KEYWORDS: LONGTIMESTEP, NO LONGTIMESTEP, DISCHARGE, FLASHOVER
LONGTIMESTEP REQUESTED WITH DVLIM= 1000.0 VOLTS.
DISCHARGE ANALYSIS OFF

```

NMV=COMPONENT TYPE AND MESH SIZE
      !TYPE= 2      UPDATE=OFF
      XMF5H= 1.CCF-01

```

```

OUTPUT OPTIONS:
                NCPT  (APRT)  TMR  (NOTIMER)
                0          YES

```

CELLS SPECIFIED FOR I/O:

KEYWORDS: [SURFACE CELL], [SURFACE AT], [SURFACE CORNER]

```
PLOT OPTIONS: TITL=NRSCP      REPEAT    ITPART    ITCUR    ITRGUP
                \000\000\000\000\000\000\000\000\000\000\000\000\000
```

DATE	TIME	LOCATION	NDIR
12/14/71	1400	NDIR	NDIR

0 3
ADDITIONAL KEYWORDS: TANKCUR TANKTRAJ 3D-VIEW MATVIEW CONTOUR

NO. OF ADDITIONAL CONTOUR PLOT CUTS - 0

NO. OF 3-D PLOT VIEWS - 3

VECTORS FROM SATELLITE CENTER TOWARD VIEWER ARE

0.5000	0.8000	0.5000
-0.5000	0.8000	0.5000
0.2000	-0.5000	0.5000

6 MATERIAL PLOT VIEWS REQUESTED:

VIEW FROM +X DIRECTION	BETWEEN	-8 AND
VIEW FROM -X DIRECTION	BETWEEN	-8 AND
VIEW FROM +Y DIRECTION	BETWEEN	-8 AND
VIEW FROM -Y DIRECTION	BETWEEN	-8 AND
VIEW FROM +Z DIRECTION	BETWEEN	-16 AND
VIEW FROM -Z DIRECTION	BETWEEN	-16 AND

PARTICLE TRACKING OPTIONS:

KEYWORDS: EMITTER, NORMITTER, SHEATH, SHEATH SELF-CONSISTENT

NO EMISSIONS REQUESTED

MAGNETIC FIELD OPTIONS: KEYWORDS (FIELD), (DIPOLE)

CONSTANT MAGNETIC FIELD - 0.00E+00 0.00E+00 0.00E+00 0.00E+00 W/M=2.
NO MAGNETIC DIPOLES

NO MAGNETIC DIFFERENCES
ELAPSED: 0 00:00:12.89 CPU: 0:00:05.94 BUFI0: 28 DIRIO: 92 FAULTS: 433

.....obida? 20

ELAPSED: 00:00:12.97 CPL J.:06.02 BUFINO: 28 DINFO: 92 FAULTS: 445
In cascading fault - 20 lun-

20 JUN 70

-66

FLTSATCOM NASCAP Results

```

COMMENT This is an Object Definition File
COMMENT Problem is FLTSATCOM
COMMENT TAP file prefix was FLTSATCOM
COMMENT More problem oriented information can be
    found in: FLTSATCOM.PRB
***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
COMMENT
    found in: FLTSATCOM.PRB
COMMENT KAP2TN
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
COMMENT RED KAP2 03/10/87
COMMENT FLTSATCOM material for MA01
    KAP2 MATERIAL PROPERTIES
    3.50E+00 1.27E-05 1.00E-16 5.00E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E-01 1.50E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E+00
    4.55E-01 1.40E+02 2.00E-05 7.90E+20 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
COMMENT LEALUM
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
COMMENT GREEN LEAL 03/10/87
COMMENT FLTSATCOM material for MA02
    LEAL MATERIAL PROPERTIES
    3.50E+00 2.54E-05 1.23E-08 5.00E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E-01 1.50E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E+00
    4.55E-01 1.40E+02 2.00E-05 3.70E+12 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
COMMENT S13GLO
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
COMMENT YELLOW S13G 03/10/87
COMMENT FLTSATCOM material for MA03
    S13G MATERIAL PROPERTIES
    3.50E+00 1.02E-04 6.50E-10 5.00E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E-01 1.50E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E+00
    4.55E-01 1.40E+02 2.00E-05 1.50E+13 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
COMMENT FSLICA
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
COMMENT BLUE FSLI 03/10/87
COMMENT FLTSATCOM material for MA04
    FSLI MATERIAL PROPERTIES
    4.00E+00 1.52E-04 1.00E-14 1.00E+01 2.40E+00 4.00E-01 1.16E+02 8.70E-01 1.16E+02 4.00E-01 1.16E+02 8.70E-01 1.16E+02 4.00E-01 1.16E+02
    4.55E-01 1.40E+02 2.00E-05 6.58E+17 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
COMMENT BLUNEL
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    MAGENTA BLKV 03/10/87
    COMMENT FLTSATCOM material for MA05
    BLKV MATERIAL PROPERTIES
    3.50E+00 5.00E-05 1.40E-08 5.00E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E-01 1.50E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E+00
    4.55E-01 1.40E+02 2.00E-05 1.40E+12 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
    COMMENT SSNE
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    ***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    COMMENT CYAN SSNE 03/10/87
    COMMENT FLTSATCOM material for MA06
    SSNE MATERIAL PROPERTIES
    1.00E+00 1.00E-03 -1.00E+00 4.70E+01 1.00E+00 8.00E-01 8.45E-01 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
    4.90E-01 1.23E+02 2.90E-05 -1.00E+00 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
    COMMENT KAP1N
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    3.12 COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    1.00 ***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    COMMENT WHITE KAP1 03/10/87
    COMMENT FLTSATCOM material for MA07
    KAP1 MATERIAL PROPERTIES
    3.50E+00 5.00E-05 1.00E-16 5.00E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E-01 1.50E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E+00
    4.55E-01 1.40E+02 2.00E-05 2.00E+20 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
    COMMENT KAP3TN
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    3.12 COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    1.00 ***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    COMMENT WHITE KAP3 03/10/87
    COMMENT FLTSATCOM material for MA08
    KAP3 MATERIAL PROPERTIES
    3.50E+00 1.27E-04 1.00E-16 5.00E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E-01 1.50E+00 2.10E+00 1.50E-01 7.15E-01 6.00E-01 1.50E+00
    4.55E-01 1.40E+02 2.00E-05 7.90E+19 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
    COMMENT EHFPRT
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    1.05 COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    1.00 ***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    COMMENT WHITE EHFP 03/10/87
    COMMENT FLTSATCOM material for MA09
    EHFP MATERIAL PROPERTIES
    1.00E+00 1.00E-03 -1.00E+00 2.44E+01 1.40E+00 8.00E-01 -1.00E+00 2.44E+01 1.40E+00 8.00E-01 -1.00E+00 2.44E+01 1.40E+00 8.00E-01 -1.00E+00
    4.90E-01 1.23E+02 3.20E-05 -1.00E+00 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
    COMMENT ALUM
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    1.83 COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    1.00 ***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    COMMENT WHITE ALUM 03/10/87
    COMMENT FLTSATCOM material for MA10
    ALUM MATERIAL PROPERTIES
    1.00E+00 1.00E-03 -1.00E+00 2.44E+01 1.40E+00 8.00E-01 -1.00E+00 2.44E+01 1.40E+00 8.00E-01 -1.00E+00 2.44E+01 1.40E+00 8.00E-01 -1.00E+00
    4.90E-01 1.23E+02 3.20E-05 -1.00E+00 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E-13 1.00E+03 1.00E+04 2.00E+03 1.00E-13 1.00E-13 1.00E+00
    COMMENT BLUNEL
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)
    ***FREAK*** GROUP NO. 4 IN THIS CARD IMAGE - TOO LONG
    COMMENT From Dir SYSSYSDEVICE: (LILLEY.CAETS.PROBLEMS.FLTSATCOM)

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FLTSATCOM MASCAP Results

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ALPH 1.00E+00 1.00E+03 1.00E+00 1.00E+01 9.70E-01 3.00E-01 1.54E+02 0.00E-01 2.20 CONDUCTOR 1
      2.44E-01 2.30E+02 0.00E-05 -1.00E+00 1.00E+04 2.00E+03 1.00E-13 1.00E+00 1.00 PATCHR
      OBJECT NOW DEFINED.

COMMENT CPHEUL
74X< 0
64Y< 7
14Z< 15

COMMENT From DIR SYSSERVICE: [LILLET CMTS: PROBLEMS: FLTSATCOM]
***PRJAG*** GROUP NO. 6 IN THIS CARD IMAGE - TOO LONG
COMMENT From DIR SYSSERVICE: [LILLET CMTS: PROBLEMS: FLTSATCOM]

CPHEUT MILITE CPHE 03/10/67

COMMENT FLTSATCOM Material for MAIL
1

CPHE MATERIAL PROPERTIES
3.50E+00 5.00E-03 1.00E-10 7.00E+00 3.00E+00 3.00E-01 4.54E+01 4.00E-01 2.10
4.55E-01 1.40E+02 2.00E-05 1.00E+10 1.00E+04 2.00E+03 1.00E-13 1.00E+00 1.00 PATCHR
      OBJECT NOW DEFINED.
74X< 0
64Y< 6
14Z< 15

OFFSET 0 0 0

CONDUCTOR 1
surface -z FSLI
endobj

OCTAGON DEFINED
AXIS = ( 7 3 17) TO ( 7 7 17)
WIDTH = 6 SIDE = 2

CONDUCTOR 1
PATCHR
OBJECT NOW DEFINED.
44X< 5
34Y< 4
17Z< 10

surface -z FSLI
endobj

CONDUCTOR 1
PATCHR
OBJECT NOW DEFINED.
94X< 10
34Y< 4
17Z< 10

surface +z FSLI
endobj

CONDUCTOR 1
PATCHR
OBJECT NOW DEFINED.
94X< 10
34Y< 6
14Z< 17

surface +z FSLI
endobj

CONDUCTOR 1
PATCHR
OBJECT NOW DEFINED.
74X< 8
64Y< 5
19Z< 20

surface -z FSLI
endobj

CONDUCTOR 1
PATCHR
OBJECT NOW DEFINED.
64X< 7
54Y< 6
19Z< 20

```

PLTSATCOM NASCAP Results

```

surface +z FSLI
endobj}

CONDUCTOR 1

PATCHR
OBJECT NOW DEFINED.
6<X< 8
6<Y< 7
19<Z< 20

surface +z FSLI
endobj}

CONDUCTOR 1

PATCHR
OBJECT NOW DEFINED.
7<X< 8
6<Y< 7
19<Z< 20

surface +z FSLI
endobj}

CONDUCTOR 1

PATCHR
OBJECT NOW DEFINED.
7<X< 8
6<Y< 7
19<Z< 20

CONDUCTOR 1
PATCHR
corn 6 5 19
face FSLI -1 0 1
length 1
endobj}

CONDUCTOR 1
PATCHR
corn 9 4 18
face FSLI 1 0 1
length 1
endobj}

CONDUCTOR 1
PATCHR
corn 9 6 18
face FSLI 1 0 1
length 1
endobj}

CONDUCTOR 1
PATCHR
corn 9 4 16
face FSLI 1 0 -1
length 1
endobj}

CONDUCTOR 1
PATCHR
corn 9 6 16
face FSLI 1 0 -1
length 1
endobj}

CONDUCTOR 1
PATCHR
bottom -z ALUM
top +z NAP1
endobj}

CONDUCTOR 1
PATCHR
THIN PLATE NOW DEFINED.
5<X< 8
2<Y< 3
19<Z< 19

bottom -z ALUM
top +z ALUM
endobj}

CONDUCTOR 1
PATCHR
bottom -z ALUM
top +z ALUM
endobj}

```

PLASCON MASCAP Results

OCTAGON
surface + S136
endob}

OCTAGON DEFINED
AXIS - 1 7 6 17) TO 1 7 7 17)
W127N - 4 S136 - 2

CONDUCTOR 1

WEDGE

corn 0 6 18

face MAP3 -1 0 -1 1
length 1
surface +2 BWP
endob}

CONDUCTOR 1

ASLANT

corn 9 10 15

face SSW 1 -1 0 3
length 3
endob}

CONDUCTOR 1

ASLANT

corn 5 7 12

face SSW 0 1 1 3
length 4
endob}

CONDUCTOR 1

ASLANT

corn 5 7 22

face SSW 0 1 -1 3
length 4
endob}

CONDUCTOR 1

ATET

corn 5 10 15

face SSW -1 -1 -1 -1
length 3
endob}

CONDUCTOR 1

ATET

corn 5 10 19

face SSW -1 -1 -1 1
length 3
endob}

CONDUCTOR 1

ATET

corn 5 7 12

face SSW 0 1 1 3
length 4
endob}

CONDUCTOR 1

ATET

corn 9 10 19

face SSW 1 -1 1

length 3
endob}

CONDUCTOR 1

ATET

corn 9 10 15

face SSW 1 -1 -1

length 3
endob}

CONDUCTOR 1

BOOM

BOOM DEFINED
BEGINNING AT
EXTENDING PARALLEL TO THE Y AXIS TO
7 7 17 (GRID 1 COORDINATES)
7 9 17 (GRID 1 COORDINATES)

radi 0.21800

surf S13G

CONDUCTOR 1

BOOM

BOOM DEFINED
BEGINNING AT
EXTENDING PARALLEL TO THE Y AXIS TO
7 9 17 (GRID 1 COORDINATES)
7 13 17 (GRID 1 COORDINATES)

radi 0.08300

surf ALUM

CONDUCTOR 1

BOOM

BOOM DEFINED
BEGINNING AT
EXTENDING PARALLEL TO THE Y AXIS TO
7 13 17 (GRID 1 COORDINATES)
7 14 17 (GRID 1 COORDINATES)

radi 0.04160

surf S13G

CONDUCTOR 1

PATCHES
OBJECT NOW DEFINED.

7484 8
3474 4
17<24 18

surface -y CPHE
endob}

CONDUCTOR 1

BOOM

BOOM DEFINED
BEGINNING AT
EXTENDING PARALLEL TO THE Y AXIS TO
15 10 18 (GRID 1 COORDINATES)
15 13 18 (GRID 1 COORDINATES)

radi 0.16700

FLTSATCOM NASCAP Results

[illegible]

VERBATIM MASCAP Results

```

bottom --s MAP1
top --s MAP1
endobj}

CONDUCTOR 1
ROOM
ROOM DEFINED
BEGINNING AT
EXTENDING PARALLEL TO THE Z AXIS TO
radi 0.00000
SURF LPAL
CONDUCTOR 1
ROOM
ROOM DEFINED
BEGINNING AT
EXTENDING PARALLEL TO THE Z AXIS TO
radi 0.00000
SURF LPAL
CONDUCTOR 1
ASLANT
COOR 2 7 15
face size 1 1 0
length 3 3 3
endobj}

CONDUCTOR 1
PLATE
THIN PLATE NOW DEFINED.
5<2< 5
2<2< 3
15<2< 19

bottom --s ALUM
top --s MAP1
endobj}

CONDUCTOR 1
PLATE
THIN PLATE NOW DEFINED.
5<2< 5
2<2< 3
15<2< 19

bottom --s ALUM
top --s ALUM
endobj}

CONDUCTOR 1
PLATE
THIN PLATE NOW DEFINED.
9<2< 9
2<2< 3
15<2< 16

bottom --s ALUM
top --s ALUM
endobj}

CONDUCTOR 1
PLATE
THIN PLATE NOW DEFINED.
5<2< 9
2<2< 3
15<2< 15

bottom --s ALUM
top --s MAP1
endobj}

***** beginning cmprss for 508 surfaces
ELAPSED: 0 00:01:09.60 CPU: 0:00:48.34 BUFTIO: 71 DIRIO: 269 FAULTS: 672
... exiting cmprss with 452 surfaces
ELAPSED: 0 00:01:26.51 CPU: 0:01:05.32 BUFTIO: 71 DIRIO: 269 FAULTS: 673
BEGIN RTSUP
ELAPSED: 0 00:01:26.81 CPU: 0:01:05.42 BUFTIO: 71 DIRIO: 269 FAULTS: 679
END RTSUP
ELAPSED: 0 00:01:30.32 CPU: 0:01:09.13 BUFTIO: 71 DIRIO: 269 FAULTS: 679
ENDBAT

```

FLTSATCOM NASCAP Results

SURFACE CELL LIST CELL NO.	CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL	SURFACE CELL LIST CELL NO.	CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL
1	1	2	9	14	-1 -1 -1	SSME ANT	51	1	4	8	13	-1 -1 -1	SSME ANT
2	1	2	9	15	1 1 0	SSME ANT	52	1	4	8	14	-1 -1 -1	SSME ANT
3	1	2	9	16	1 1 0	SSME ANT	53	1	4	8	19	-1 -1 -1	SSME ANT
4	1	2	9	17	1 1 0	SSME ANT	54	1	4	8	20	-1 -1 -1	SSME ANT
5	1	2	9	18	1 1 0	SSME ANT	55	1	4	9	12	-1 -1 -1	SSME ANT
6	1	2	9	19	-1 -1 -1	SSME ANT	56	1	4	9	13	-1 -1 -1	SSME ANT
7	1	3	8	14	-1 -1 -1	SSME ANT	57	1	4	9	20	-1 -1 -1	SSME ANT
8	1	3	8	15	1 1 0	SSME ANT	58	1	4	9	21	-1 -1 -1	SSME ANT
9	1	3	8	16	1 1 0	SSME ANT	59	1	5	2	14	0 0 1	ALUM
10	1	3	8	17	1 1 0	SSME ANT	60	1	5	2	15	0 0 1	ALUM
11	1	3	8	18	1 1 0	SSME ANT	61	1	5	2	16	-1 0 0	ALUM
12	1	3	8	19	-1 -1 -1	SSME ANT	62	1	5	2	17	-1 0 0	ALUM
13	1	3	9	13	-1 -1 -1	SSME ANT	63	1	5	2	18	0 0 1	KAP1
14	1	3	9	14	-1 -1 -1	SSME ANT	64	1	5	2	18	0 0 1	KAP1
15	1	3	9	19	-1 -1 -1	SSME ANT	65	1	5	2	18	-1 0 0	ALUM
16	1	3	9	20	-1 -1 -1	SSME ANT	66	1	5	2	19	0 0 -1	ALUM
17	1	4	2	15	1 0 0	KAP1	67	1	5	3	14	0 -1 0	KAP3
18	1	4	2	16	1 0 0	KAP1	68	1	5	3	14	-1 0 -1	FSLI
19	1	4	2	17	1 0 0	ALUM	69	1	5	3	15	0 -1 0	KAP3
20	1	4	2	18	1 0 0	ALUM	70	1	5	3	16	0 -1 0	KAP3
21	1	4	3	15	-1 0 -1	KAP3	71	1	5	3	17	0 -1 0	KAP3
22	1	4	3	16	-1 0 -1	KAP3	72	1	5	3	18	0 -1 0	KAP3
23	1	4	3	17	-1 0 -1	KAP3	73	1	5	3	19	0 -1 0	KAP3
24	1	4	3	17	-1 0 -1	FSLI	74	1	5	3	19	-1 0 -1	KAP1
25	1	4	3	18	-1 0 -1	KAP1	75	1	5	4	14	-1 0 -1	KAP1
26	1	4	3	18	-1 0 -1	FSLI	76	1	5	4	19	-1 0 -1	KAP1
27	1	4	3	18	-1 0 -1	KAP1	77	1	5	5	14	-1 0 -1	FSLI
28	1	4	3	18	-1 0 -1	FSLI	78	1	5	5	19	0 1 0	KAP2
29	1	4	4	15	-1 0 -1	KAP1	79	1	5	6	14	-1 0 -1	KAP1
30	1	4	4	16	-1 0 -1	KAP1	80	1	5	6	15	0 1 0	KAP2
31	1	4	4	17	-1 0 -1	FSLI	81	1	5	6	15	0 1 0	SSIG
32	1	4	4	18	-1 0 -1	FSLI	82	1	5	6	15	0 1 0	SSIG
33	1	4	5	15	-1 0 -1	KAP1	83	1	5	6	16	0 1 0	SSIG
34	1	4	5	16	-1 0 -1	KAP1	84	1	5	6	17	0 1 0	KAP2
35	1	4	5	17	-1 0 -1	KAP1	85	1	5	6	18	0 1 0	SSIG
36	1	4	5	18	-1 0 -1	KAP1	86	1	5	6	18	0 1 0	SSIG
37	1	4	6	15	-1 0 -1	KAP2	87	1	5	6	19	0 1 0	KAP2
38	1	4	6	15	-1 0 -1	FSLI	88	1	5	6	19	-1 0 1	KAP1
39	1	4	6	16	-1 0 -1	KAP2	89	1	5	7	14	0 1 1	SSME ANT
40	1	4	6	16	-1 0 -1	KAP2	90	1	5	7	19	0 1 1	SSME ANT
41	1	4	6	17	-1 0 -1	KAP2	91	1	5	8	13	0 1 1	SSME ANT
42	1	4	6	17	-1 0 -1	KAP1	92	1	5	8	20	0 1 -1	SSME ANT
43	1	4	6	18	-1 0 -1	KAP2	93	1	5	9	21	0 1 1	SSME ANT
44	1	4	7	14	-1 -1 -1	FSLI	94	1	6	1	2	1 0 0	BLKV
45	1	4	7	15	-1 -1 -1	SSME ANT	95	1	6	1	2	1 0 0	BLKV
46	1	4	7	15	1 1 0	SSME ANT	96	1	6	1	3	1 0 0	BLKV
47	1	4	7	16	1 1 0	SSME ANT	97	1	6	1	4	1 0 0	BLKV
48	1	4	7	17	1 1 0	SSME ANT	98	1	6	1	5	1 0 0	BLKV
49	1	4	7	18	-1 1 0	SSME ANT	99	1	6	1	6	1 0 0	BLKV
50	1	4	7	19	-1 -1 1	SSME ANT	100	1	6	1	7	1 0 0	BLKV

SURFACE CELL LIST CELL NO.	CONDUCTOR	IN	IV	IS	NORMAL	MATERIAL	SURFACE CELL LIST CELL NO.	CONDUCTOR	IN	IV	IS	NORMAL	MATERIAL
101	4541420005	1	6	1	26	BLV	151	4556120005	1	6	4	26	BLV
102	4541720005	1	6	1	27	BLV	152	4566220005	1	6	4	27	BLV
103	4548320005	1	6	1	28	BLV	153	4556320005	1	6	4	28	BLV
104	4549312005	1	6	1	29	BLV	154	4556420005	1	6	4	29	BLV
105	4548320005	1	6	1	30	BLV	155	4556520005	1	6	4	30	BLV
106	4548320005	1	6	1	31	BLV	156	4556620005	1	6	4	31	BLV
107	4548720005	1	6	2	2	BLV	157	4557220005	1	6	5	2	BLV
108	4548720005	1	6	2	3	BLV	158	4557320005	1	6	5	3	BLV
109	4548312006	1	6	2	4	BLV	159	4557420005	1	6	5	4	BLV
110	4548220005	1	6	2	5	BLV	160	4557520005	1	6	5	5	BLV
111	4543320005	1	6	2	6	BLV	161	4557620005	1	6	5	6	BLV
112	4543420005	1	6	2	7	BLV	162	4557720005	1	6	5	7	BLV
113	4544301005	1	6	2	14	KAP1	163	4566630005	1	6	5	14	KAP1
114	4566408112	1	6	2	15	ALUM	164	4561301004	1	6	5	19	PBL1
115	4546701005	1	6	2	18	KAP1	165	4562220005	1	6	5	26	BLV
116	4546403212	1	6	2	19	ALUM	166	4562320005	1	6	5	27	BLV
117	4545720005	1	6	2	26	BLV	167	4562420005	1	6	5	28	BLV
118	4546620005	1	6	2	27	BLV	168	4562520005	1	6	5	29	BLV
119	4546120005	1	6	2	28	BLV	169	4562620005	1	6	5	30	BLV
120	4546320005	1	6	2	29	BLV	170	4562720005	1	6	5	31	BLV
121	4546420005	1	6	2	30	BLV	171	4563220005	1	6	6	2	BLV
122	4546420005	1	6	2	31	BLV	172	4563420005	1	6	6	3	BLV
123	4547020005	1	6	3	2	BLV	173	4563520005	1	6	6	4	BLV
124	4547120005	1	6	3	3	BLV	174	4563620005	1	6	6	5	BLV
125	4547220005	1	6	3	4	BLV	175	4563720005	1	6	6	6	BLV
126	4547320005	1	6	3	5	BLV	176	4564020005	1	6	6	7	BLV
127	4547420005	1	6	3	6	BLV	177	4564703004	1	6	6	14	PBL1
128	4547520005	1	6	3	14	BLV	178	4564704001	1	6	6	14	KAP2
129	4550403005	1	6	3	1	KAP1	179	4565004003	1	6	6	15	0136
130	455041410	1	6	3	10	KAP2	180	4565104003	1	6	6	16	0136
131	455051410	1	6	3	15	KAP3	181	4565204003	1	6	6	17	0136
132	455061410	1	6	3	16	KAP3	182	4565304003	1	6	6	18	0136
133	455071410	1	6	3	17	KAP3	183	4565401004	1	6	6	19	0136
134	455101410	1	6	3	18	KAP3	184	4565404001	1	6	6	19	0136
135	4551101004	1	6	3	19	FSL1	185	4565320005	1	6	6	26	KAP2
136	455												

FLTSATCOM NASCAP Results

SURFACE CELL LIST CELL NO.	CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL	SURFACE CELL LIST		CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL					
							CELL NO.	CODE											
201	457262005	1	6	7	28	1	0	0	BLKV	251	465536004	1	7	3	4	-1	0	0	FSLI
202	457272005	1	6	7	29	1	0	0	BLKV	252	465546004	1	7	3	5	-1	0	0	FSLI
203	457302005	1	6	7	30	1	0	0	BLKV	253	465556004	1	7	3	6	-1	0	0	FSLI
204	457312005	1	6	7	31	1	0	0	BLKV	254	465566004	1	7	3	7	-1	0	0	FSLI
205	457352005	1	6	8	2	1	0	0	BLKV	255	465603004	1	7	3	14	0	0	-1	FSLI
206	457362005	1	6	8	3	1	0	0	BLKV	256	465651410	1	7	3	14	0	-1	0	KAP3
207	457372005	1	6	8	4	1	0	0	BLKV	257	465661410	1	7	3	15	0	-1	0	KAP3
208	457382005	1	6	8	5	1	0	0	BLKV	258	465671410	1	7	3	16	0	-1	0	KAP3
209	457402005	1	6	8	6	1	0	0	BLKV	259	465701413	1	7	3	17	0	-1	0	CPH2
210	457422005	1	6	8	7	1	0	0	BLKV	260	465711410	1	7	3	18	0	-1	0	KAP3
211	457500526	1	6	8	13	0	0	1	SSME ANT	261	465720107	1	7	3	19	0	9	1	KAP1
212	457507026	1	6	8	20	0	1	-1	SSME ANT	262	465721410	1	7	3	19	0	-1	0	KAP3
213	457652005	1	6	8	26	BLKV	263	466016004	1	263	466026004	1	7	3	26	-1	0	0	FSLI
214	457662005	1	6	8	27	1	0	0	BLKV	264	466026004	1	7	3	27	-1	0	0	FSLI
215	457672005	1	6	8	28	1	0	0	BLKV	265	466036004	1	7	3	28	-1	0	0	FSLI
216	457702005	1	6	8	29	1	0	0	BLKV	266	466046004	1	7	3	29	-1	0	0	FSLI
217	457712005	1	6	8	30	1	0	0	BLKV	267	466036004	1	7	3	30	-1	0	0	FSLI
218	457722005	1	6	8	31	BLKV	268	466066004	1	268	466066004	1	7	4	2	-1	0	0	FSLI
219	460100526	1	6	9	12	0	1	1	SSME ANT	269	466126004	1	7	4	2	-1	0	0	FSLI
220	460210726	1	6	9	21	0	1	-1	SSME ANT	270	466136004	1	7	4	3	-1	0	0	FSLI
221	464476004	1	7	1	2	-1	0	0	FSLI	271	466146004	1	7	4	4	-1	0	0	FSLI
222	464506004	1	7	1	3	-1	0	0	FSLI	272	466156004	1	7	4	4	-1	0	0	FSLI
223	464516004	1	7	1	4	-1	0	0	FSLI	273	466166004	1	7	4	5	-1	0	0	FSLI
224	464526004	1	7	1	5	-1	0	0	FSLI	274	466176004	1	7	4	6	-1	0	0	FSLI
225	464536004	1	7	1	6	-1	0	0	FSLI	275	466260307	1	7	4	7	-1	0	0	FSLI
226	464546004	1	7	1	7	-1	0	0	FSLI	276	466330104	1	7	4	14	0	0	-1	KAP1
227	464776004	1	7	1	26	-1	0	0	FSLI	277</									

FLTSATCOM NASCAP Results

SURFACE CELL LIST		CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL	SURFACE CELL LIST		CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL					
CELL NO.	CODE							CELL NO.	CODE											
301	467206004	1	7	6	6	-1	0	0	FSLI	351	476102012	1	8	2	17	1	0	0	ALUM	
302	467216004	1	7	6	7	-1	0	0	FSLI	352	476110112	1	8	2	18	0	0	1	ALUM	
303	467300304	1	7	6	14	0	0	-1	FSLI	353	476118012	1	8	2	18	1	0	0	ALUM	
304	467300401	1	7	6	14	0	1	0	KAP2	354	476120312	1	8	2	19	0	0	-1	ALUM	
305	467310403	1	7	6	15	0	1	0	S13G	355	20476461450	1	8	3	14	0	-1	0	KAP3	
306	467320403	1	7	6	16	0	1	0	S13G	356	476462307	1	8	3	14	1	0	-1	KAP1	
307	467330403	1	7	6	17	0	1	0	S13G	357	476471410	1	8	3	15	0	-1	0	KAP3	
308	467340403	1	7	6	18	0	1	0	S13G	358	476481410	1	8	3	16	0	-1	0	KAP3	
309	467350104	1	7	6	19	0	0	1	FSLI	359	476511410	1	8	3	17	0	-1	0	KAP3	
310	467350401	1	7	6	19	0	1	0	KAP2	360	476521410	1	8	3	18	0	-1	0	KAP3	
311	467460004	1	7	6	26	-1	0	0	FSLI	361	476531450	1	8	3	19	0	-1	0	KAP3	
312	467460004	1	7	6	27	-1	0	0	FSLI	362	476532107	1	8	3	19	1	0	1	KAP1	
313	467466004	1	7	6	28	-1	0	0	FSLI	363	476707207	1	8	4	14	1	0	-1	KAP1	
314	467476004	1	7	6	29	-1	0	0	FSLI	364	477142107	1	8	4	14	1	0	-1	KAP1	
315	467506004	1	7	6	30	-1	0	0	FSLI	365	477502307	1	8	4	15	1	0	-1	KAP1	
316	467510404	1	7	6	31	-1	0	0	FSLI	366	477532107	1	8	5	19	1	0	1	KAP2	
317	467556004	1	7	7	2	-1	0	0	FSLI	367	20500110441	1	8	6	14	0	1	0	KAP2	
318	467566004	2	7	7	3	-1	0	0	FSLI	368	50012307	1	8	6	14	1	0	-1	KAP1	
319	467576004	1	7	7	4	-1	0	0	FSLI	369	10500120441	1	8	6	15	0	1	0	KAP2	
320	467606004	1	7	7	5	-1	0	0	FSLI	370	20500120443	1	8	6	15	0	1	0	S13G	
321	467610004	1	7	7	6	-1	0	0	FSLI	371	500130403	1	8	6	16	0	1	0	S13G	
322	467626004	1	7	7	7	-1	0	0	FSLI	372	500140403	1	8	6	17	0	1	0	S13G	
323	467710526	1	7	7	14	0	1	1	SSME ANT	373	30500130441	1	8	6	18	0	1	0	KAP2	
324	467760726	1	7	7	19	0	0	-1	SSME ANT	374	500150443	1	8	6	18	0	1	0	S13G	
325	470056004	1	7	7	26	-1	0	0	FSLI	375	500160441	1	8	6	19	0	1	0	KAP2	
326	470066004	1	7	7	27	-1	0	0	FSLI	376	500162107	1	8	6	19	1	0	1	SSME ANT	
327	470076004	1	7	7	28	-1	0	0	FSLI	377	500320526	1	8	7	14	0	1	-1	SSME ANT	
328	470106004	1	7	7	29	-1	0	0	FSLI	378	500370726	1	8	7	14	0	1	-1	SSME ANT	
329	470116004	1	7	7	30	-1	0	0	FSLI	379	501120526	1	8	8	13	0	1	-1	SSME ANT	
330	470126004	1	7	7	31	-1	0	0	FSLI	380	501210726	1	8	8	20	0	1	-1	SSME ANT	
331	470136004	1	7	8	2	-1	0	0	FSLI	381	501320526	1	8	9	12	0	1	-1	SSME ANT	
332	470176004	1	7	8	3	-1	0	0	FSLI	382	501630726	1	8	9	21	0	1	-1	SSME ANT	
333	470206004	1	7	8	4	-1	0	0	FSLI	383	506676012	1	8	9	21	-1	0	0	ALUM	
334	470216004	1	7	8	5	-1	0	0	FSLI	384	506706007	1	8	9	22	16			KAP1	
335	470226004	1	7	8	6	-1	0	0	FSLI	385	506716007	1	8	9	22	17			KAP1	
336	470236004	1	7	8	7	-1	0	0	FSLI	386	506726007	1	8	9	22	18			KAP1	
337	470310526	1	7	8	13	0	1	1	SSME ANT	387	20507301450	1	8	9	3	15	0	-1	0	KAP3
338	470400726	1	7	8	20	0	1	-1	SSME ANT	388	507302307	1	8	9	3	15	1	0	-1	KAP1
339	470466004	1	7	8	26	-1	0	0	FSLI	389	507311410	1	8	9	3	16	0	-1	0	KAP3
340	470476004	1	7	8	27	-1	0	0	FSLI	390	507312007	1	8	9	3	16	1	0	0	KAP1
341	470506004	1	7	8	28	-1	0	0	FSLI	391	507321410	1	8	9	3	17	0	-1	0	KAP3
342	470516004	1	7	8	29	-1	0	0	FSLI	392	507322004	1	8	9	3	17	1	0	0	FSLI
343	470526004	1	7	8	30	-1	0	0	FSLI	393	507331439	1	8	9	3	18	0	-1	0	KAP3
344	470536004	1	7	8	31	-1	0	0	FSLI	394	507332107	1	8	9	3	18	1	0	1	KAP1
345	470718326	1	7	9	12	0	1	1	SSME ANT	395	507712304	1	8	9	4	15	1	0	-1	FSLI
346	471920726	1	7	9	21	0	1	-1	SSME ANT	396	507722007	1	8	9	4	16	1	0	0	KAP1
347	476050107	1	8	2	14	0	0	1	KAP1	397	507732007	1	8	9	4	17	1	0	0	KAP1
348	476060312	1	8	2	15	0	0	-1	ALUM	398	507742104	1	8	9	4	18	1	0	1	FSLI
349	476062012	1	8	2	15	1	0	0	ALUM	399	510322307	1	8	9	5	15	1	0	-1	KAP1
350	476072012	1	8	2	16	1	0	0	ALUM	400	510332004	1	8	9	5	16	1	0	0	FSLI

FLTSATCOM NASCAP Results

SURFACE CELL LIST		CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL	SURFACE CELL LIST		CONDUCTOR	IX	IY	IZ	NORMAL	MATERIAL
CELL NO.	CODE							CELL NO.	CODE						
401	510342007	1	9	5	17	1 0 0	KAP1	451	577071452	1	15	9	18	0 -1 0	ALUM
402	510352107	1	9	6	15	0 1 0	KAP1	452	577072112	1	15	9	18	1 0 1	ALUM
403	20510750441	1	9	6	15	0 1 0	KAP2								
404	510752304	1	9	6	15	0 1 0	FSL1								
405	510740401	1	9	6	16	0 1 0	KAP2								
406	510742007	1	9	6	16	0 1 0	FSL1								
407	510750401	1	9	6	17	0 1 0	KAP1								
408	510752007	1	9	6	17	0 1 0	KAP1								
409	510760441	1	9	6	18	0 1 0	KAP2								
410	510762104	1	9	6	18	0 1 0	FSL1								
411	511333766	1	9	7	14	1 -1 -1	SSME ANT								
412	511343426	1	9	7	15	1 -1 0	SSME ANT								
413	511353426	1	9	7	16	1 -1 0	SSME ANT								
414	511363426	1	9	7	17	1 -1 0	SSME ANT								
415	511373426	1	9	7	18	1 -1 0	SSME ANT								
416	511403566	1	9	7	19	1 -1 1	SSME ANT								
417	511733766	1	9	8	13	1 -1 -1	SSME ANT								
418	511743726	1	9	8	14	1 -1 -1	SSME ANT								
419	512013526	1	9	8	19	1 -1 1	SSME ANT								
420	512023566	1	9	8	20	1 -1 1	SSME ANT								
421	512333766	1	9	9	12	1 -1 -1	SSME ANT								
422	512343726	1	9	9	13	1 -1 -1	SSME ANT								
423	512433526	1	9	9	20	1 -1 1	SSME ANT								
424	512443566	1	9	9	21	1 -1 1	SSME ANT								
425	522553766	1	10	8	14	1 -1 -1	SSME ANT								
426	522563426	1	10	8	15	1 -1 0	SSME ANT								
427	522573426	1	10	8	16	1 -1 0	SSME ANT								
428	522603426	1	10	8	17	1 -1 0	SSME ANT								
429	522613426	1	10	8	18	1 -1 0	SSME ANT								
430	522623566	1	10	8	19	1 -1 1	SSME ANT								
431	523153766	1	10	9	13	1 -1 -1	SSME ANT								
432	523163726	1	10	9	14	1 -1 -1	SSME ANT								
433	523233526	1	10	9	19	1 -1 1	SSME ANT								
434	523243566	1	10	9	20	1 -1 1	SSME ANT								
435	533773766	1	11	9	14	1 -1 -1	SSME ANT								
436	534003426	1	11	9	15	1 -1 0	SSME ANT								
437	534013426	1	11	9	16	1 -1 0	SSME ANT								
438	534023426	1	11	9	17	1 -1 0	SSME ANT								
439	534033426	1	11	9	18	1 -1 0	SSME ANT								
440	534043566	1	11	9	19	1 -1 1	SSME ANT								
441	30566250452	1	14	9	17	0 -1 0	ALUM								
442	30566251452	1	14	9	17	0 -1 0	ALUM								
443	566256312	1	14	9	17	-1 0 -1	ALUM								
444	10566260452	1	14	9	18	0 1 0	ALUM								
445	10566261452	1	14	9	18	0 -1 0	ALUM								
446	566266112	1	14	9	18	-1 0 1	ALUM								
447	20577060452	1	15	9	17	0 1 0	ALUM								
448	20577061452	1	15	9	17	0 -1 0	ALUM								
449	577062312	1	15	9	17	1 0 -1	ALUM								
450	577070452	1	15	9	18	0 1 0	ALUM								

LIST OF BOOM PROPERTIES		BOOM	RADIUS	AXIS	MATERIAL	CONDUC
1	0.218	Y	Y	Y	Y	1
2	0.083	Y	Y	Y	Y	1
3	0.042	Y	Y	Y	Y	1
4	0.167	Y	Y	Y	Y	1
5	0.167	Y	Y	Y	Y	1
6	0.167	Y	Y	Y	Y	1
7	0.333	X	X	X	X	1
8	0.333	Y	Y	Y	Y	1
9	0.060	Z	Z	Z	Z	1
10	0.060	Z	Z	Z	Z	1

PLASATCOM NASCAP Results

PREPROCESSING OF MATERIAL PROPERTIES

MATERIAL 1: KAP2

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
2 THICKNESS	1.27E-05 METERS	1.27E-05 MESH
3 CONDUCTIVITY	1.00E-16 MHO/M	1.00E-16 MHO/M
4 ATOMIC NUMBER	5.00E+00 (NONE)	5.00E+00 (NONE)
5 DELTA MAX > COEFF	2.10E+00 (NONE)	2.10E+00 (NONE)
6 E-MAX > DEPTH**2-1	1.50E-01 KEV	1.50E-01 KEV
7 RANGE	7.15E-01 ANG.	7.15E-01 ANG.
8 EXPONENT > RANGE	6.00E-01 (NONE)	6.00E-01 (NONE)
9 RANGE > EXPONENT	3.12E+02 ANG.	3.12E+02 ANG.
10 PHOTOCURRENT	1.77E+00 (NONE)	1.77E+00 (NONE)
11 YIELD FOR IEEV PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
12 MAX DE/DR FOR PROTONS	1.40E+02 KEV	1.40E+02 KEV
13 SURFACE RESISTIVITY	2.00E-05 A/M**2	2.00E-05 A/M**2
14 SPACE DISCHARGE POT'L	7.90E+10 OHMS	7.90E+10 OHMS
15 INTERNAL DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
16 RADN INDUCEDCOND'T COEFF	2.00E+03 VOLTS	2.00E+03 VOLTS
17 RADN INDUCEDCOND'T POWER	1.00E-13 MCHMS3	1.00E-13 MCHMS3
18 DENSITY	1.00E+00 (NONE)	1.00E+00 (NONE)
19	1.00E+03 KG/M*3	1.00E+03 KG/M*3
20	2.00E+01	2.00E+01

MATERIAL 2: LPAL

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
2 THICKNESS	2.54E-05 METERS	2.54E-05 MESH
3 CONDUCTIVITY	1.23E-08 MHO/M	1.23E-08 MHO/M
4 ATOMIC NUMBER	5.00E+00 (NONE)	5.00E+00 (NONE)
5 DELTA MAX > COEFF	2.10E+00 (NONE)	2.10E+00 (NONE)
6 E-MAX > DEPTH**2-1	1.50E-01 KEV	1.50E-01 KEV
7 RANGE	7.15E-01 ANG.	7.15E-01 ANG.
8 EXPONENT > RANGE	6.00E-01 (NONE)	6.00E-01 (NONE)
9 RANGE > EXPONENT	3.12E+02 ANG.	3.12E+02 ANG.
10 PHOTOCURRENT	1.77E+00 (NONE)	1.77E+00 (NONE)
11 YIELD FOR IEEV PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
12 MAX DE/DR FOR PROTONS	1.40E+02 KEV	1.40E+02 KEV
13 SURFACE RESISTIVITY	2.00E-05 A/M**2	2.00E-05 A/M**2
14 SPACE DISCHARGE POT'L	7.90E+10 OHMS	7.90E+10 OHMS
15 INTERNAL DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
16 RADN INDUCEDCOND'T COEFF	2.00E+03 VOLTS	2.00E+03 VOLTS
17 RADN INDUCEDCOND'T POWER	1.00E-13 MCHMS3	1.00E-13 MCHMS3
18 DENSITY	1.00E+00 (NONE)	1.00E+00 (NONE)
19	1.00E+03 KG/M*3	1.00E+03 KG/M*3
20	2.00E+01	2.00E+01

MATERIAL 3: 913G

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
2 THICKNESS	1.02E-04 METERS	1.02E-04 MESH
3 CONDUCTIVITY	6.50E-10 MHO/M	6.50E-10 MHO/M
4 ATOMIC NUMBER	5.00E+00 (NONE)	5.00E+00 (NONE)
5 DELTA MAX > COEFF	2.10E+00 (NONE)	2.10E+00 (NONE)
6 E-MAX > DEPTH**2-1	1.50E-01 KEV	1.50E-01 KEV
7 RANGE	7.15E-01 ANG.	7.15E-01 ANG.
8 EXPONENT > RANGE	6.00E+00 (NONE)	6.00E+00 (NONE)
9 RANGE > EXPONENT	1.03E+00 ANG.	1.03E+00 ANG.
10 PHOTOCURRENT	9.00E+00 (NONE)	9.00E+00 (NONE)
11 YIELD FOR IEEV PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
12 MAX DE/DR FOR PROTONS	1.40E+02 KEV	1.40E+02 KEV
13 SURFACE RESISTIVITY	2.00E-05 A/M**2	2.00E-05 A/M**2
14 SPACE DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
15 INTERNAL DISCHARGE POT'L	2.00E+03 VOLTS	2.00E+03 VOLTS
16 RADN INDUCEDCOND'T COEFF	1.00E+00 (NONE)	1.00E+00 (NONE)
17 RADN INDUCEDCOND'T POWER	1.00E+03 KG/M*3	1.00E+03 KG/M*3
18 DENSITY	2.00E+01	2.00E+01
19		
20		

MATERIAL 4: FELI

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
2 THICKNESS	1.02E-04 METERS	1.02E-04 MESH
3 CONDUCTIVITY	6.50E-10 MHO/M	6.50E-10 MHO/M
4 ATOMIC NUMBER	5.00E+00 (NONE)	5.00E+00 (NONE)
5 DELTA MAX > COEFF	2.10E+00 (NONE)	2.10E+00 (NONE)
6 E-MAX > DEPTH**2-1	1.50E-01 KEV	1.50E-01 KEV
7 RANGE	7.15E-01 ANG.	7.15E-01 ANG.
8 EXPONENT > RANGE	6.00E+00 (NONE)	6.00E+00 (NONE)
9 RANGE > EXPONENT	1.03E+00 ANG.	1.03E+00 ANG.
10 PHOTOCURRENT	9.00E+00 (NONE)	9.00E+00 (NONE)
11 YIELD FOR IEEV PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
12 MAX DE/DR FOR PROTONS	1.40E+02 KEV	1.40E+02 KEV
13 SURFACE RESISTIVITY	2.00E-05 A/M**2	2.00E-05 A/M**2
14 SPACE DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
15 INTERNAL DISCHARGE POT'L	2.00E+03 VOLTS	2.00E+03 VOLTS
16 RADN INDUCEDCOND'T COEFF	1.00E+00 (NONE)	1.00E+00 (NONE)
17 RADN INDUCEDCOND'T POWER	1.00E+03 KG/M*3	1.00E+03 KG/M*3
18 DENSITY	2.00E+01	2.00E+01
19		
20		

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
2 THICKNESS	1.27E-05 METERS	1.27E-05 MESH
3 CONDUCTIVITY	1.00E-16 MHO/M	1.00E-16 MHO/M
4 ATOMIC NUMBER	5.00E+00 (NONE)	5.00E+00 (NONE)
5 DELTA MAX > COEFF	2.10E+00 (NONE)	2.10E+00 (NONE)
6 E-MAX > DEPTH**2-1	1.50E-01 KEV	1.50E-01 KEV
7 RANGE	7.15E-01 ANG.	7.15E-01 ANG.
8 EXPONENT > RANGE	6.00E-01 (NONE)	6.00E-01 (NONE)
9 RANGE > EXPONENT	3.12E+02 ANG.	3.12E+02 ANG.
10 PHOTOCURRENT	1.77E+00 (NONE)	1.77E+00 (NONE)
11 YIELD FOR IEEV PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
12 MAX DE/DR FOR PROTONS	1.40E+02 KEV	1.40E+02 KEV
13 SURFACE RESISTIVITY	2.00E-05 A/M**2	2.00E-05 A/M**2
14 SPACE DISCHARGE POT'L	7.90E+10 OHMS	7.90E+10 OHMS
15 INTERNAL DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
16 RADN INDUCEDCOND'T COEFF	2.00E+03 VOLTS	2.00E+03 VOLTS
17 RADN INDUCEDCOND'T POWER	1.00E-13 MCHMS3	1.00E-13 MCHMS3
18 DENSITY	1.00E+00 (NONE)	1.00E+00 (NONE)
19	1.00E+03 KG/M*3	1.00E+03 KG/M*3
20	2.00E+01	2.00E+01

MATERIAL 5: BLKV

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
2 THICKNESS	5.00E-05 METERS	5.00E-05 MESH
3 CONDUCTIVITY	1.40E-08 MHO/M	1.40E-08 MHO/M
4 ATOMIC NUMBER	5.00E+00 (NONE)	5.00E+00 (NONE)
5 DELTA MAX > COEFF	2.10E+00 (NONE)	2.10E+00 (NONE)
6 E-MAX > DEPTH**2-1	1.50E-01 KEV	1.50E-01 KEV
7 RANGE	7.15E-01 ANG.	7.15E-01 ANG.
8 EXPONENT > RANGE	6.00E-01 (NONE)	6.00E-01 (NONE)
9 RANGE > EXPONENT	3.12E+02 ANG.	3.12E+02 ANG.
10 PHOTOCURRENT	1.77E+00 (NONE)	1.77E+00 (NONE)
11 YIELD FOR IEEV PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
12 MAX DE/DR FOR PROTONS	1.40E+02 KEV	1.40E+02 KEV
13 SURFACE RESISTIVITY	2.00E-05 A/M**2	2.00E-05 A/M**2
14 SPACE DISCHARGE POT'L	7.90E+10 OHMS	7.90E+10 OHMS
15 INTERNAL DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
16 RADN INDUCEDCOND'T COEFF	2.00E+03 VOLTS	2.00E+03 VOLTS
17 RADN INDUCEDCOND'T POWER	1.00E-13 MCHMS3	1.00E-13 MCHMS3
18 DENSITY	1.00E+00 (NONE)	1.00E+00 (NONE)
19	1.00E+03 KG/M*3	1.00E+03 KG/M*3
20	2.00E+01	2.00E+01

MATERIAL 6: SSKK

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	1.00E+00 (NONE)	1.00E+00 (NONE)
2 THICKNESS	1.00E-03 METERS	1.00E-03 MESH
3 CONDUCTIVITY	-1.00E+00 MHO/M	-1.00E+00 MHO/M
4 ATOMIC NUMBER	4.70E+01 (NONE)	4.70E+01 (NONE)
5 DELTA MAX > COEFF	1.04E+00 (NONE)	1.04E+00 (NONE)
6 E-MAX > DEPTH**2-1	6.00E-01 KEV	1.50E-02 ANG-01
7 RANGE	8.45E-01 ANG.	6.93E-01 ANG.
8 EXPONENT > RANGE	6.20E-01 (NONE)	1.38E+02 ANG.
9 RANGE > EXPONENT	7.94E+01 ANG.	8.20E-01 (NONE)
10 PHOTOCURRENT	1.74E+00 (NONE)	1.74E+00 (NONE)
11 YIELD FOR IEEV PROTONS	4.90E-01 (NONE)	4.90E-01 (NONE)
12 MAX DE/DR FOR PROTONS	1.23E+02 KEV	1.23E+02 KEV
13 SURFACE RESISTIVITY	2.90E-03 A/M**2	2.90E-03 A/M**2
14 SPACE DISCHARGE POT'L	-1.00E+00 OHMS	-8.45E-13 V-S/Q
15 INTERNAL DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
16 RADN INDUCEDCOND'T COEFF	2.00E+03 VOLTS	2.00E+03 VOLTS
17 RADN INDUCEDCOND'T POWER	1.00E-13 MCHMS3	1.00E-13 MCHMS3
18 DENSITY	1.00E+00 (NONE)	1.00E+00 (NONE)
19	1.00E+03 KG/M*3	1.00E+03 KG/M*3
20	2.00E+01	-1.00E+00

MATERIAL 7: KAP1

PROPERTY	INPUT VALUE	CODE VALUE
1 DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)

FLTSATCOM NASCAP Results

2	THICKNESS	5.08E-05 METERS
3	CONDUCTIVITY	1.00E-16 MHO/M
4	ATOMIC NUMBER	5.00E+00 (NONE)
5	DELTA MAX > COEFF	2.10E+00 (NONE)
6	E-MAX > DEPTH--1	1.50E-01 KEV
7	RANGE	7.15E+01 ANG.
8	EXPONENT > RANGE	6.00E-01 (NONE)
9	EXPONENT	3.12E+02 ANG.
10	YIELD FOR IREK PROTONS	1.77E+00 (NONE)
11	MAX DE/UX FOR PROTONS	4.55E-01 (NONE)
12	PHOTOCURRENT	1.40E+02 KEV
13	SURFACE RESISTIVITY	2.00E+05 A/M**2
14	SPACE DISCHARGE POT'L	1.00E+04 VOLTS
15	INTERNAL DISCHARGE POT'L	2.00E+03 VOLTS
16	RADN INDUCEDCOND'Y COEFF	1.00E-13 MKHMS3
17	RADN INDUCEDCOND'Y POWER	1.00E+00 (NONE)
18	DENSITY	1.00E+03 KG/M*3
19		1.00E+01
20		

MATERIAL 8: KAP3

1	PROPERTY	INPUT VALUE	CODE VALUE
2	DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
3	THICKNESS	1.27E-04 METERS	1.27E-04 MESH
4	CONDUCTIVITY	1.00E-16 MHO/M	1.00E-16 MHO/M
5	ATOMIC NUMBER	5.00E+00 (NONE)	5.00E+00 (NONE)
6	DELTA MAX > COEFF	2.10E+00 (NONE)	2.10E+00 (NONE)
7	E-MAX > DEPTH--1	1.50E-01 KEV	8.74E-02 ANG-01
8	RANGE	7.15E+01 ANG.	4.29E+01 ANG.
9	EXPONENT > RANGE	6.00E-01 (NONE)	5.52E+02 ANG.
10	EXPONENT	3.12E+02 ANG.	6.00E-01 (NONE)
11	YIELD FOR IREK PROTONS	1.77E+00 (NONE)	1.77E+00 (NONE)
12	MAX DE/UX FOR PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
13	PHOTOCURRENT	1.40E+02 KEV	1.40E+02 KEV
14	SURFACE RESISTIVITY	2.00E+05 A/M**2	2.00E+05 A/M**2
15	SPACE DISCHARGE POT'L	1.00E+04 VOLTS	6.98E+07 V-S/Q
16	INTERNAL DISCHARGE POT'L	2.00E+03 VOLTS	1.00E+04 VOLTS
17	RADN INDUCEDCOND'Y COEFF	1.00E-13 MKHMS3	2.00E+03 VOLTS
18	RADN INDUCEDCOND'Y POWER	1.00E+00 (NONE)	1.00E+00 (NONE)
19	DENSITY	1.00E+03 KG/M*3	1.00E+00 (NONE)
20		2.00E+01	1.00E-16

MATERIAL 9: BRFP

1	PROPERTY	INPUT VALUE	CODE VALUE
2	DIELECTRIC CONSTANT	1.00E+00 (NONE)	1.00E+00 (NONE)
3	THICKNESS	1.00E-03 METERS	1.00E-02 MESH
4	CONDUCTIVITY	-1.00E+00 MHO/M	-1.00E+00 MHO/M
5	ATOMIC NUMBER	2.44E+01 (NONE)	2.44E+01 (NONE)
6	DELTA MAX > COEFF	1.40E+00 (NONE)	3.02E+00 (NONE)
7	E-MAX > DEPTH--1	8.00E-01 KEV	1.49E-02 ANG-01
8	RANGE	-1.00E+00 ANG.	1.57E+02 ANG.
9	EXPONENT > RANGE	0.00E+00 (NONE)	0.00E+00 ANG.
10	EXPONENT	7.18E+00 ANG.	2.02E+00 (NONE)
11	YIELD FOR IREK PROTONS	5.55E+01 (NONE)	1.00E+00 (NONE)
12	MAX DE/UX FOR PROTONS	4.90E-01 (NONE)	4.90E-01 (NONE)
13	PHOTOCURRENT	1.23E+02 KEV	1.23E+02 KEV
14	SURFACE RESISTIVITY	3.20E-05 A/M**2	-8.85E-13 V-S/Q
15	SPACE DISCHARGE POT'L	1.00E+04 VOLTS	1.00E+04 VOLTS
16	INTERNAL DISCHARGE POT'L	2.00E+03 VOLTS	2.00E+03 VOLTS
17	RADN INDUCEDCOND'Y COEFF	1.00E-13 MKHMS3	1.00E-13 MKHMS3
18	RADN INDUCEDCOND'Y POWER	1.00E+00 (NONE)	1.00E+00 (NONE)
19	DENSITY	1.00E+03 KG/M*3	1.00E+03 KG/M*3
20		2.00E+01	-1.00E+00

MATERIAL 10: ALUM

1	PROPERTY	INPUT VALUE	CODE VALUE
2	DIELECTRIC CONSTANT	1.00E+00 (NONE)	1.00E+00 (NONE)
3	THICKNESS	1.00E-03 METERS	1.00E-02 MESH
4	CONDUCTIVITY	-1.00E+00 MHO/M	-1.00E+00 MHO/M
5	ATOMIC NUMBER	1.30E+01 (NONE)	1.30E+01 (NONE)

5	DELTA MAX > COEFF	9.70E-01 (NONE)	9.19E+00 (NONE)
6	E-MAX > DEPTH--1	3.00E-01 KEV	3.00E-02 ANG-01
7	RANGE	1.54E+02 ANG.	1.23E+02 ANG.
8	EXPONENT > RANGE	8.00E-01 (NONE)	3.87E+02 ANG.
9	EXPONENT	2.20E+02 ANG.	8.00E-01 (NONE)
10	YIELD FOR IREK PROTONS	1.76E+00 (NONE)	1.76E+00 (NONE)
11	MAX DE/UX FOR PROTONS	2.44E-01 (NONE)	2.44E-01 (NONE)
12	PHOTOCURRENT	2.30E+02 KEV	2.30E+02 KEV
13	SURFACE RESISTIVITY	4.00E-05 A/M**2	4.00E-05 A/M**2
14	SPACE DISCHARGE POT'L	1.00E+04 VOLTS	-8.85E-13 V-S/Q
15	INTERNAL DISCHARGE POT'L	2.00E+03 VOLTS	1.00E+04 VOLTS
16	RADN INDUCEDCOND'Y COEFF	1.00E-13 MKHMS3	1.00E-13 MKHMS3
17	RADN INDUCEDCOND'Y POWER	1.00E+00 (NONE)	1.00E+00 (NONE)
18	DENSITY	1.00E+03 KG/M*3	1.00E+03 KG/M*3
19		2.00E+01	-1.00E+00
20			

MATERIAL 11: CPHE

1	PROPERTY	INPUT VALUE	CODE VALUE
2	DIELECTRIC CONSTANT	3.50E+00 (NONE)	3.50E+00 (NONE)
3	THICKNESS	1.00E-03 METERS	5.08E-02 MESH
4	CONDUCTIVITY	1.00E-10 MHO/M	1.00E-10 MHO/M
5	ATOMIC NUMBER	7.00E+00 (NONE)	7.00E+00 (NONE)
6	DELTA MAX > COEFF	3.00E+00 (NONE)	2.27E+01 (NONE)
7	E-MAX > DEPTH--1	3.00E-01 KEV	3.83E-02 ANG-01
8	RANGE	4.54E+01 ANG.	1.82E+01 ANG.
9	EXPONENT > RANGE	4.00E-01 (NONE)	3.85E+02 ANG.
10	EXPONENT	2.18E+02 ANG.	4.00E-01 (NONE)
11	YIELD FOR IREK PROTONS	1.77E+00 (NONE)	1.77E+00 (NONE)
12	MAX DE/UX FOR PROTONS	4.55E-01 (NONE)	4.55E-01 (NONE)
13	PHOTOCURRENT	1.40E+02 KEV	1.40E+02 KEV
14	SURFACE RESISTIVITY	2.00E+05 A/M**2	2.00E+05 A/M**2
15	SPACE DISCHARGE POT'L	1.00E+04 VOLTS	8.85E-03 V-S/Q
16	INTERNAL DISCHARGE POT'L	2.00E+03 VOLTS	1.00E+04 VOLTS
17	RADN INDUCEDCOND'Y COEFF	1.00E-13 MKHMS3	1.00E-13 MKHMS3
18	RADN INDUCEDCOND'Y POWER	1.00E+00 (NONE)	1.00E+00 (NONE)
19	DENSITY	1.00E+03 KG/M*3	1.00E+03 KG/M*3
20		2.00E+01	1.00E-10

332 VOLUME CELLS NUMBERED BY NUNLTS.

CALL CALLED FOR LUN--	20
**geomtl: go13	
ELAPSED: 0 00:01:57.90 CPU: 0:01:23.64 BUFTO: 136 DIRIO: 653 FAULTS: 895	
**geomtl: attwds	
ELAPSED: 0 00:01:58.85 CPU: 0:01:24.59 BUFTO: 136 DIRIO: 653 FAULTS: 912	
**geomtl: after attwds	
ELAPSED: 0 00:01:59.33 CPU: 0:01:25.07 BUFTO: 136 DIRIO: 653 FAULTS: 912	
**geomtl: finalst	
ELAPSED: 0 00:02:11.69 CPU: 0:01:37.05 BUFTO: 136 DIRIO: 662 FAULTS: 951	
INSLST -- 336 INSULATING SURFACE CELLS FOUND	
364 INCLUDING BOOM CELLS	
**geomtl: shell	
ELAPSED: 0 00:02:11.98 CPU: 0:01:37.23 BUFTO: 136 DIRIO: 664 FAULTS: 965	
**geomtl: fndcse	
ELAPSED: 0 00:02:12.02 CPU: 0:01:37.27 BUFTO: 136 DIRIO: 664 FAULTS: 982	

KAP2 HAS SURFACE RESISTIVITY OF 7.9E+20 OHMS
 LFAL HAS SURFACE RESISTIVITY OF 3.2E+12 OHMS
 SL3G HAS SURFACE RESISTIVITY OF 1.5E+13 OHMS
 FSL1 HAS SURFACE RESISTIVITY OF 6.6E+17 OHMS
 BLRV HAS SURFACE RESISTIVITY OF 1.4E+12 OHMS
 KAP1 HAS SURFACE RESISTIVITY OF 2.0E+20 OHMS
 KAP3 HAS SURFACE RESISTIVITY OF 7.9E+19 OHMS
 CPHE HAS SURFACE RESISTIVITY OF 1.0E+10 OHMS

FNDSCF -- 696 SURFACE CONDUCTING EDGES FOUND

BOOMEJ -- 753 EDGES FOUND

**geomtl: nwtktl

FLTSATCOM NASCAP Results

ELAPSED: 0 00:03:12.86 CPU: 0:02:37.46 BUFIN: 138 DIRIO: 677 FAULTS: 1001

DELTA= 6.00E+01 SECONDS. DELFAC= 1.00E+00.

1496 ENTRIES IN REVISED VTCL

**genet1: end genet1

ELAPSED: 0 00:03:39.53 CPU: 0:03:00.20 BUFIN: 136 DIRIO: 810 FAULTS: 1100
 DBLCIN - DPT (5, 3.15) ELT 1 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 4 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 7 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 3 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 3 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 7 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 5 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 7 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 8 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 4 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 8 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 2 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 4 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 8 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 8 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 6 MARKED BOT
 DBLCIN - DPT (5, 3.15) ELT 6 MARKED BOT
 ELAPSED: 0 00:03:43.38 CPU: 0:03:01.19 BUFIN: 139 DIRIO: 853 FAULTS: 1105

*****Hidcel

ELAPSED: 0 00:03:43.49 CPU: 0:03:01.25 BUFIN: 139 DIRIO: 854 FAULTS: 1113
 FILE OPENED FOR DIRECT ACCESS. FILE: 2
 HICEL - DIR - (0.975900, 0.0975900, -0.1951800)
 DISTANCE - 1000.00
 ***WARNING** IN HICEL M37- 12 IFFS- 12001200000 BYPASSED ADDA1

FINAL HAL - 296

ELAPSED: 0 00:04:18.06 CPU: 0:03:26.66 BUFIN: 149 DIRIO: 1002 FAULTS: 1413

*****Capaci

ELAPSED: 0 00:04:18.26 CPU: 0:03:26.76 BUFIN: 150 DIRIO: 1005 FAULTS: 1415
 call to s3lcor

POTENTIALS TO BE SET BY SETALL TO 1.00E+00/(4*PI*R)

AVERAGE RADIUS (R0) - 9.72E+00 CODE UNITS

46 POTENTIAL ITERATIONS COMPLETED.

ROOTR/ADNMAX= 3.00D-09/ 4.86E-01

PCOND - 1.1062E-02

CCOND - 1.0000E+00

VPAW= 1.1046E-02 -- CS SCALED BY 9.9916E-01

CROEFF --- EFFECTIVE ORBIT RADIUS - 0.7199 METERS

ELAPSED: 0 00:56:04.06 CPU: 0:33:55.21 BUFIN: 339 DIRIO: 34731 FAULTS: 1663

*****Trilin

ELAPSED: 0 00:56:04.11 CPU: 0:33:55.26 BUFIN: 339 DIRIO: 34731 FAULTS: 1663
 call to s3lcor
 FLUX DEFINITION MAXWELL

ELECTRON TEMPERATURE - 1.50E+04 ELECTRON VOLTS

ELECTRON DENSITY - 1.00E+06 METER**(-3)

ION TEMPERATURE - 1.50E+04 ELECTRON VOLTS

ION DENSITY - 1.00E+06 METER**(-3)

POTENTIALS TO BE SET BY SETALL TO 1.00E+00/(4*PI*R)

AVERAGE RADIUS (R0) - 9.72E+00 CODE UNITS

*** THE SYSTEM IS NOW AT TIME 0.000E+00 SECONDS. 3 CYCLES HAVE BEEN REQUESTED.

FLTSATCOM NASCAP Results

BEGIN CYCLE NO. 1 TIME = 0.000E+00 SECONDS.
 ELAPSED: 0 00:56:17.75 CPU: 0:33:59.95 BUFO: 345 DIRIO: 34933 FAULTS: 1733
 QSUMMER FOUND QSUM= 1.00E+00 CODE UNITS.
 AFTER SCREENING CORRECTION (SCREENING LENGTH= 1.00E+03 M.) QSUM= 1.00E+00
 QSCALE= 1.00E+00 CORRECTED TO 1.00E+00
 QSUM = 1.0012E+00
 PCOND = 8.190E-03
 QCOND = 0.000E+00

EXPLICITLY CALCULATED FLUXES FOR CYCLE 1 TIME = 0.000E+00 SECONDS.
 DURING THIS TIMESTEP, NASCAP WILL TAKE INTO ACCOUNT SUCH
 ADDITIONAL EFFECTS AS SURFACE CONDUCTIVITY, DISCHARGES, EMITTER OPERATION,
 AND VARIATION OF LIMITING FACTORS FOR LOW-ENERGY EMITTED ELECTRONS.

SURFACE CELL NO. 1
 CODE = 415067766
 LOCATION = 2 9 14
 NORMAL = 1 1 1
 MATERIAL = SSME ANT.
 POTENTIAL = 0.000E+00 VOLTS
 EXTERNAL FIELD = 0.000E+00 VOLTS/METER
 LIMITING FACTOR = 1.000E+00
 FLUXES IN A/M**2
 INCIDENT ELECTRONS 3.29E-06
 RESULTING SECONDARIES 1.05E-06
 RESULTING BACKSCATTER 1.79E-06
 INCIDENT PROTONS 7.68E-08
 RESULTING SECONDARIES 3.01E-07
 PHOTOCURRENT 1.47E-05
 NET FLUX 1.46E-05

INITIAL NET CHARGING CURRENT (WITHOUT LIMITING) = 2.54E-05 AMPERES.
 INITIAL NET CHARGING CURRENT (WITH LIMITING) = 2.54E-05 AMPERES.
 CALL TO #31COR
 ELAPSED: 0 00:59:08.47 CPU: 0:36:34.69 BUFO: 348 DIRIO: 35115 FAULTS: 1770
 ELAPSED: 0 00:59:08.48 CPU: 0:36:34.70 BUFO: 349 DIRIO: 35115 FAULTS: 1771
 LIMCEL LOC(BUF(1,12))= 1745314
 TOTAL CAPACITANCE TO INFINITY = 90.5 CODE UNITS: 8.01E-11 FARADS.
 ICCG --- RDOTR/RDOTR1 = 1.24E-16/ 5.44E+14
 LEAVING ICCG1 -- VCTRI = 1.900E+07
 ICCG --- RDOTR/RDOTR1 = 1.77E-20/ 4.53E+08
 LEAVING ICCG1 -- VCTRI = 0.000E+00
 WARNING DFDVHX NOT CALLED DUE TO PRESENCE OF HIGH CONDUCTIVITY MATERIALS.
 DELTAX= 2.23E-04 SECONDS.
 ***DFDVHY -- CHAX= 2.54E-05 AMPS DFDVC(1) CHANGED FROM 0.00000E+00 TO -1.43312E+04
 ICCG --- RDOTR/RDOTR1 = 1.22E-20/ 4.41E+08
 LEAVING ICCG1 -- VCTRI = 0.000E+00
 VPIX --- 176 OUT OF 364 MODES FIXED.
 CONDUCTOR 1 FIXED TO 1.33 VOLTS.
 ICCG --- RDOTR/RDOTR1 = 1.89E-20/ 5.37E+08
 LEAVING ICCG1 -- VCTRI = 1.324E+00
 NO DISCHARGE ANALYSIS
 ICCG --- RDOTR/RDOTR1 = 1.49E-18/ 2.56E+10
 LEAVING ICCG2 -- VCTRI = 1.781E+00

AVERAGE FLUXES (ONLY AVAILABLE FOR INSULATING CELLS)

NEW CONDUCTOR POTENTIALS
 VNEW DQ VOLD CONDUCTOR
 1.7812E+00 1.1944E+08 0.0000E+00 1
 TOTAL CHANGE IN CHARGE = -5.552E+03 CODE UNITS
 -4.916E-09 COULOMBS
 AVERAGE NET CHARGING CURRENT = -8.193E-11 AMPERES
 -9.253E-01 CODE UNITS/SEC.

CONDUCTOR CURRENTS (AMPS: POSITIVE INTO CONDUCTORS):

NET CURR5NT (AVG DQ/DT): 1.76E-06

CONDUCTIVITY CURRENT (NEW)
 (FROM INSULATING CELLS): 8.11E-04

PLASMA CURRENT (INITIAL)
 (TO BARE CELL): 4.64E-06

REMAINDER CURRENT: -8.14E-04

FLATSCOM NASCAP Results

CONTINUE CYCLE NO. 1 AT UPDATED TIME - 6.000E+01 SECONDS.
 ELAPSED: 0 01:03:50.68 CPU: 0:40:19.66 BUFTO: 352 DIRIO: 36158 FAULTS: 1828
 OSUM = -5.5520E+03

BEGIN CYCLE NO. 2 TIME - 6.000E+01 SECONDS.
 ELAPSED: 0 01:38:41.89 CPU: 1:00:24.31 BUFTO: 362 DIRIO: 58485 FAULTS: 1859
 OSUMER FOUND OSUM -5.46E+03 CODE UNITS.
 AFTER SCREENING CORRECTION (SCREENING LENGTH- 1.00E+03 M.) OSUM -5.46E+03
 CORRECTED TO -5.55E+03

SURFACE POTENTIALS - ALL 485 CELLS

CELL NO. 1 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 11 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 21 -3.589E+02 -1.456E+02 -3.589E+02 -1.456E+02 -3.589E+02 -1.456E+02 -3.589E+02 -1.456E+02 -3.589E+02 -1.456E+02
 31 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02
 41 -9.863E+00 -1.456E+02 6.423E-01 -1.456E+02 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 51 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 61 -3.589E+02 -3.589E+02 -3.589E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02
 71 -3.589E+02 -3.589E+02 -3.589E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02 -1.456E+02
 81 7.831E-01 1.103E+00 6.280E-01 6.005E-01 -1.842E+01 8.961E-01 -7.975E+00 -1.456E+02 -1.456E+02 1.781E+00
 91 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 101 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 111 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 121 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 131 -3.589E+02 -3.589E+02 -3.589E+02 -3.589E+02 -3.589E+02 -3.589E+02 -3.589E+02 -3.589E+02 -3.589E+02 -3.589E+02
 141 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 151 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 161 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 171 7.861E-01 1.754E+00 -1.866E+02 6.839E-01 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 181 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 191 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00 4.717E+00
 201 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 211 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 221 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 231 -1.456E+02 1.781E+00 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 241 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 251 -1.456E+02 -3.589E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 261 -1.456E+02 -3.589E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 271 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 281 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 291 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 301 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 311 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 321 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 331 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 341 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02 -1.865E+02
 351 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 361 -3.589E+02 3.645E+00 4.034E+00 3.645E+00 4.034E+00 4.034E+00 4.034E+00 4.034E+00 4.034E+00 4.034E+00
 371 1.159E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 381 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 391 -3.589E+02 4.998E+00 -3.589E+02 3.645E+00 3.645E+00 3.645E+00 3.645E+00 3.645E+00 3.645E+00 3.645E+00
 401 4.414E+00 3.645E+00 7.831E-01 3.439E+00 4.939E+01 2.059E+00 -3.547E+01 2.208E+00 -2.410E+00 1.781E+00
 411 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 421 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 431 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 441 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 451 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00 1.781E+00
 461 2.816E+00 2.773E+00 2.408E+00 2.773E+00 2.773E+00 2.773E+00 2.773E+00 2.773E+00 2.773E+00 2.773E+00
 471 1.781E+00 2.512E+00 2.512E+00 2.641E+00 2.248E+00 2.602E+00 2.602E+00 2.602E+00 2.602E+00 2.602E+00
 481 2.618E+00 2.618E+00 2.618E+00 2.618E+00 2.618E+00 2.618E+00 2.618E+00 2.618E+00 2.618E+00 2.618E+00

31 POTENTIAL ITERATIONS COMPLETED.
 ROOT/ROOTR - 2.270E-01/ 4.17E+07

PCOND - 1.781E+00
 QCOND - 1.324E+08
 ELAPSED: 0 01:38:41.49 CPU: 1:00:16.49 BUFTO: 360 DIRIO: 58335 FAULTS: 1838
 MENTRA- 0

SPREP -- 1 GRIDS OUT OF 1 READ IN.
 call to 831cor
 ELAPSED: 0 01:38:41.49 CPU: 1:00:24.12 BUFTO: 360 DIRIO: 58482 FAULTS: 1859

ICCG --- ROOTR/ROOTR1 - 2.73E-15/ 1.05E+10
 LEAVING ICCG1 --- VCTR1 - -9.578E+00
 HIGHQ --- MUH- 14
 ICCG --- ROOTR/ROOTR1 - 1.70E-11/ 9.35E+09
 LEAVING ICCG1 --- VCTR1 - -1.170E+01
 HIGHQ --- MUH- 2
 ICCG --- ROOTR/ROOTR1 - 2.72E-12/ 7.58E+09
 LEAVING ICCG1 --- VCTR1 - -1.220E+01
 HIGHQ --- MUH- 1
 ICCG --- ROOTR/ROOTR1 - 2.81E-19/ 5.52E+09

SURFACE CELL NO. 1 CODE - 41506766
 LOCATION - 2 9 14
 NORMAL - 1 1 1
 MATERIAL - SSHE ANT.
 POTENTIAL - 1.781E+00 VOLTS
 EXTERNAL FIELD - 1.487E+01 VOLTS/METER
 LIMITING FACTOR - 4.104E-01
 FLUXES IN A/M**2
 INCIDENT ELECTRONS
 RESULTING SECONDARIES
 RESULTING BACKSCATTER
 INCIDENT PROTONS
 RESULTING SECONDARIES
 PHOTOCURRENT
 NET FLUX
 INITIAL NET CHARGING CURRENT (WITHOUT LIMITING) - 2.54E-05 AMPERES.
 INITIAL NET CHARGING CURRENT (WITH LIMITING) - -6.13E-06 AMPERES.
 call to allcor
 ELAPSED: 0 01:41:29.86 CPU: 1:03:01.23 BUFTO: 365 DIRIO: 58666 FAULTS: 1862
 ELAPSED: 0 01:41:29.88 CPU: 1:03:01.25 BUFTO: 365 DIRIO: 58666 FAULTS: 1862
 LIMCEL LOC(BUF(1,12)) = 1745314
 TOTAL CAPACITANCE TO INFINITY - 90.5 CODE UNITS: 8.01E-11 FARADS.
 ICCG --- ROOTR/ROOTR1 - 2.73E-15/ 1.05E+10
 LEAVING ICCG1 --- VCTR1 - -9.578E+00
 ICCG --- ROOTR/ROOTR1 - 2.73E-15/ 1.05E+10
 LEAVING ICCG1 --- VCTR1 - -9.578E+00
 WARNING DFDVHM NOT CALLED DUE TO PRESENCE OF HIGH CONDUCTIVITY MATERIALS.
 DELTDM - 2.23E-04 SECONDS.
 ***DFDVMY - CHAX- 2.54E-05 AMPS DFDVC(11) CHANGED FROM -6.90543E+01 TO -1.44238E+04

FLTSATCOM NASCAP Results

BEGIN CYCLE NO. 3 TIME = 1.200E+02 SECONDS.
 ELAPSED: 0 02:27:29.59 CPU: 1:30:59.71 BUFIQ: 381 DIRIO: 86907 FAULTS: 1875
 QSUMMER FOUND QSUM= -1.14E+04 CODE UNIT.
 AFTER SCREENING CORRECTION (SCREENING LENGTH= 1.00E+03 M.) QSUM= -1.14E+04
 OSCALP= -1.14E+04
 QSUM = -1.1432E+04
 PCOMD = 2.339E+00
 QCOND = 2.412E+00

EXPLICITLY CALCULATED FLUXES FOR CYCLE 3 TIME = 1.200E+02 SECONDS.
 DURING THIS TIMESTEP, NASCAP WILL TAKE INTO ACCOUNT SUCH
 ADDITIONAL EFFECTS AS SURFACE CONDUCTIVITY, DISCHARGES, EMITTER OPERATION,
 AND VARIATION OF LIMITING FACTORS FOR LOW-ENERGY EMITTED ELECTRONS.

SURFACE CELL NO. 1
 CODE = 415067766
 LOCATION = 2 9 14
 NORMAL = 1 1 1
 MATERIAL = SSML ANT.
 POTENTIAL = 2.339E+00 VOLTS
 EXTERNAL FIELD = 3.014E+01 VOLTS/METER
 LIMITING FACTOR = 2.215E-01

FLUXES IN A/M**2
 INCIDENT ELECTRONS 3.29E-06
 RESULTING SECONDARIES 1.32E-07
 RESULTING BACKSCATTER 1.79E-06
 INCIDENT PROTONS 7.68E-08
 RESULTING SECONDARIES (3.01E-07)
 PHOTOCURRENT 3.26E-06 (1.47E-05)

NET FLUX 2.13E-06
 INITIAL NET CHARGING CURRENT (WITHOUT LIMITING) = 2.55E-05 AMPERES.
 INITIAL NET CHARGING CURRENT (WITH LIMITING) = -6.41E-06 AMPERES.
 call to s3lcor

ELAPSED: 0 02:30:17.43 CPU: 1:33:37.37 BUFIQ: 384 DIRIO: 87088 FAULTS: 1875
 ELAPSED: 0 02:30:17.84 CPU: 1:33:37.39 BUFIQ: 384 DIRIO: 87088 FAULTS: 1875
 LIMCEL LOC(BUFI(1,12))= 1745314

TOTAL CAPACITANCE TO INFINITY = 90.5 CODE UNITS. 8.01E-11 FARADS.

ICCG --- RDOTR/RDOTRI = 1.09E-17/ 4.15E+12
 LEAVING ICCG1 -- VCTRI = -9.884E+01
 .CCG --- RDOTR/RDOTRI = 9.09E-18/ 4.15E+12
 LEAVING ICCG1 -- VCTRI = -9.884E+01
 WARNING DFDVM NOT CALLED DUE TO PRESENCE OF HIGH CONDUCTIVITY MATERIALS.
 DELTOD= 2.23E-04 SECONDS.
 ***DFDVM -- CHAN= 2.55E-05 MFS DFDVC(1) CHANGED FROM -6.89770E+01 TO -1.44497E+04

ICCG --- RUOTR/RDOTRI = 9.10E-18/ 4.12E+12
 LEAVING ICCG1 -- VCTRI = -9.849E+01
 HIGHQ --- MUNH= 12
 ICCG --- RDOTR/RDOTRI = 6.38E-17/ 4.19E+12
 LEAVING ICCG1 -- VCTRI = -1.008E+02
 LOWQ --- MUNL= 13

ICCG --- RDOTR/RDOTRI = 1.35E-15/ 3.47E+12
 LEAVING ICCG1 -- VCTRI = -9.455E+01
 TURNON -- NTURN= 14
 TURNON -- NTURN= 15 INCLUDING CONDUCTORS.

ICCG --- RDOTR/RDOTRI = 1.14E-15/ 3.46E+12
 LEAVING ICCG1 -- VCTRI = -9.440E+01
 VFIX --- 157 OUT OF 364 NODES FIXED.
 ICCG --- RDOTR/RDOTRI = 2.26E-14/ 3.14E+12
 LEAVING ICCG1 -- VCTRI = -8.975E+01
 NO DISCHARGE ANALYSIS
 ICCG --- RDOTR/RDOTRI = 3.75E-18/ 2.73E+10
 LEAVING ICCG1 -- VCTRI = -8.881E+01
 AVERAGE FLUXES (ONLY AVAILABLE FOR INSULATING CELLS)

NEW CONDUCTOR POTENTIALS
 VNEW DQ VOLD CONDUCTOR
 -8.8805E+01 9.3410E-07 2.3389E+00 1
 TOTAL CHANGE IN CHARGE = -1.381E+04 CODE UNITS
 -1.223E-08 COULOMBS
 AVERAGE NET CHARGING CURRENT = -2.038E-10 AMPERES
 -2.301E+02 CODE UNITS/SEC.
 CONDUCTOR CURRENTS (AMPS; POSITIVE INTO CONDUCTORS):
 1

NET CURRENT (AVG DQ/DT): 1.38E-06
 CONDUCTIVITY CURRENT (NEW)
 (FROM INSULATING CELLS): -4.23E-05
 PLASMA CURRENT (INITIAL)
 (TO BARE CELLS): -1.20E-07
 REMAINDER CURRENT: 4.38E-05

FLTSATCOM NASCAP Results

CONTINUE CYCLE NO. 3 AT UPDATED TIME - 1.800E+02 SECONDS.
ELAPSED: 0 03:35:02.36 CPU: 1:37:33.92 BUFTO: 389 DIRIO: 88456 FAULTS: 1877
OSUN - -2.5240E+04

SURFACE POTENTIALS - ALL 485 CELLS

CELL NO. 1 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
21 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
31 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
41 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
51 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
61 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
71 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
81 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
91 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
101 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
111 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
121 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
131 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
141 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
151 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
161 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
171 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
181 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
191 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
201 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
211 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
221 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
231 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
241 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
251 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
261 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
271 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
281 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
291 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
301 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
311 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
321 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
331 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
341 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
351 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
361 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
371 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
381 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
391 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
401 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
411 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
421 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
431 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
441 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
451 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
461 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
471 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01
481 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01 -0.881E+01

29 POTENTIAL ITERATIONS COMPLETED.
ROOT/NORMAN- 1.40D+00/ 1.62E+08

PCOND - -8.8803E+01
OCCOND - 3.8502E+08
ELAPSED: 0 03:08:14.50 CPU: 1:56:16.22 BUFTO: 397 DIRIO: 109251 FAULTS: 1877
NEXTTRA- 0

EFREP -- 1 GRIDS OUT OF 1 READ IN.
Call to #3100

ELAPSED: 0 03:08:27.43 CPU: 1:56:24.00 BUFTO: 397 DIRIO: 109406 FAULTS: 1877

IP - 12 IR - 13 IU - 10 ISAVE - 14 IPSAVE - 10

LAST CYCLE COMPLETED IS 3.

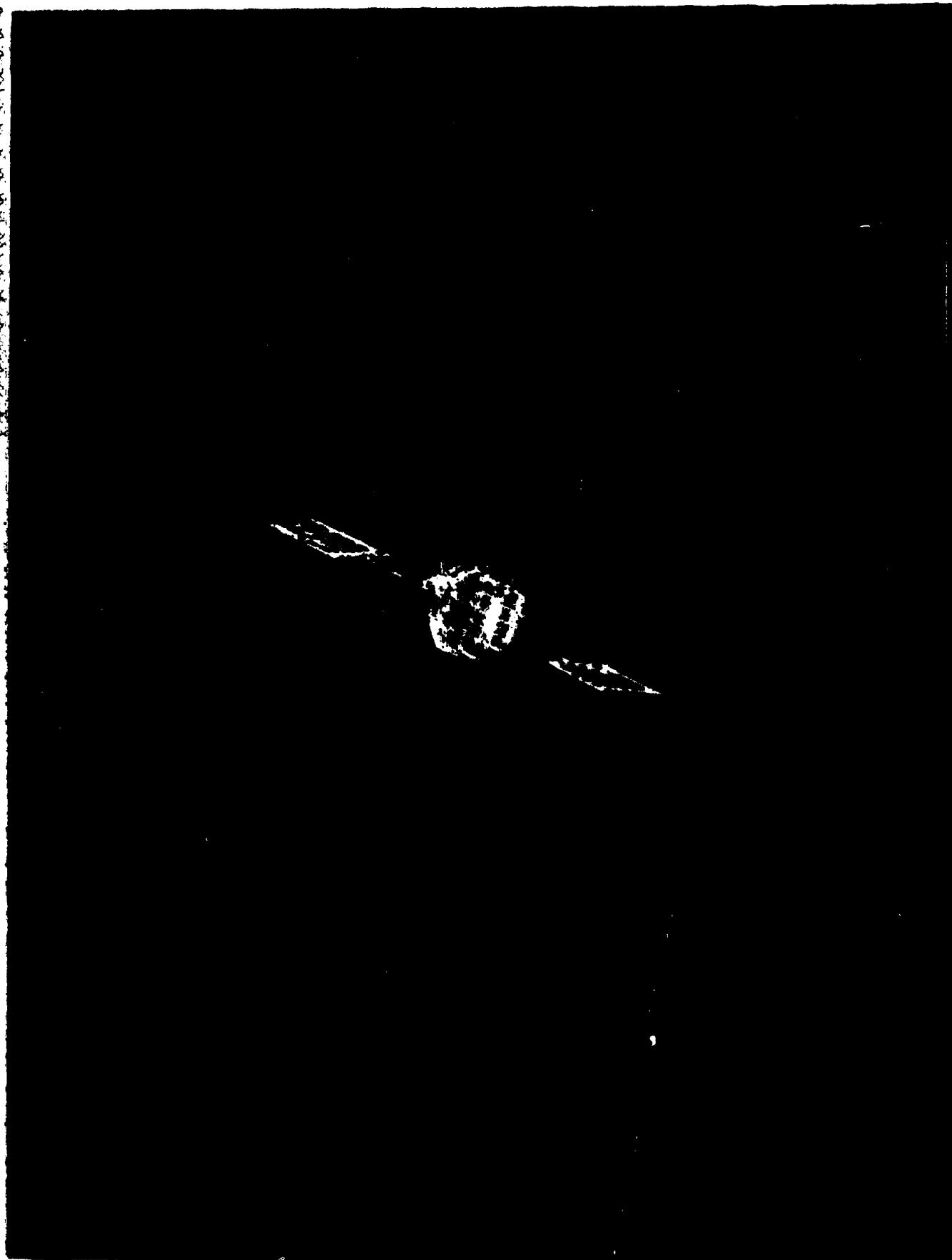
IPSAVE- 10 Iuns = 12 11 13 25 10 14 15 18 19 20 16 17 21 22 26 27 28
IPSAVE- 10 Iuns = 10 11 13 25 12 14 15 18 19 20 16 17 21 22 26 27 28

IP - 10 IR - 13 IU - 12 ISAVE - 14 IPSAVE - 10

ELAPSED: 0 03:08:31.53 CPU: 1:56:24.64 BUFTO: 397 DIRIO: 109520 FAULTS: 1880

*****end
ELAPSED: 0 03:08:31.75 CPU: 1:56:24.95 BUFTO: 398 DIRIO: 109523 FAULTS: 1880
CLOSERS CALLED FOR ON UNIT

(END NASCAP)



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-1.1E+03

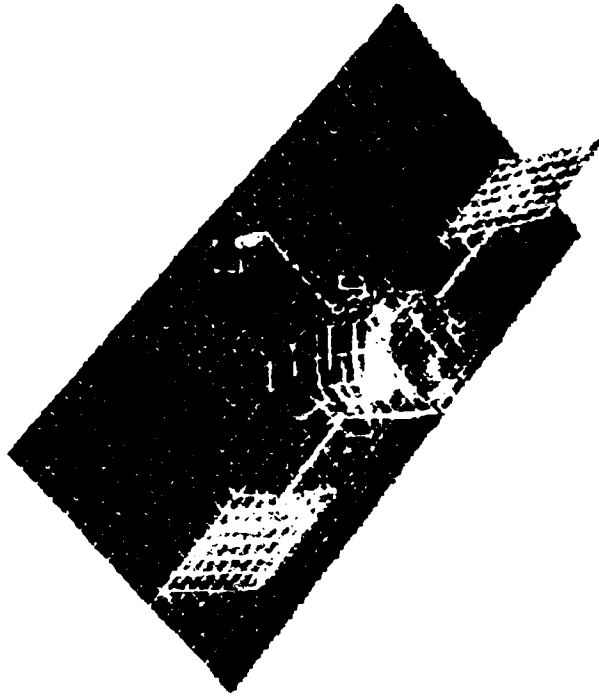
-9.04E+02

-6.78E+02

-4.52E+02

-2.26E+02

-2.1E-04



FUNCTION
PRINCS

VIEW
> 2d
Exit

would you like a hardcopy (0=no, 1=y) ? 1

C.2 POLAR 1.1 MICRO SHUTTLE TEST RUN

Included in this section are the following files in order:

Old Object Definition File

Plots of MicroShuttle made using ANVIL 5000

IGES file created by ANVIL 5000 (MSHUTL.TAP)

Object Building Block File created with POLCAT
(MSHUTL.OBB)

Object Definition File created by POLCAT
(MSHUTL.ODF)

POLAR VEHICL, ORIENT and NTERAK Rundecks

Material plot made with SHONTL and "surfplot
imat"

POLAR VEHICL, ORIENT, and NTERAK Output

Plots of Results from new stuff

 potential contours

 surface potentials

COMMENT MATERIAL DEFINITIONS
COMMENT FOR PRESENT PURPOSES, ALL PROPERTIES ARE 'KAPTON'
FRSI

3.5, .000127, 1.E-16, 5., 2.1, .15, 71.48, .60,
312.1, 1.77, .455, 140., .00002, 1.E+16, 1.E+4, 2.E+3,
1.E-13, 1., 1.E+3, 20.

HRSI

3.5, .000127, 1.E-16, 5., 2.1, .15, 71.48, .60,
312.1, 1.77, .455, 140., .00002, 1.E+16, 1.E+4, 2.E+3,
1.E-13, 1., 1.E+3, 20.

LRSI

3.5, .000127, 1.E-16, 5., 2.1, .15, 71.48, .60,
312.1, 1.77, .455, 140., .00002, 1.E+16, 1.E+4, 2.E+3,
1.E-13, 1., 1.E+3, 20.

LESS

3.5, .000127, 1.E-16, 5., 2.1, .15, 71.48, .60,
312.1, 1.77, .455, 140., .00002, 1.E+16, 1.E+4, 2.E+3,
1.E-13, 1., 1.E+3, 20.

COMMENT THIN PLATE ALONG SHUTTLE BOTTOM TO
COMMENT SPECIFY BOTTOM AS TOP

PLATE

CORNER -1, -2, -5

DELTAS 2, 0, 10

BOTTOM +Y FRSI

TOP -Y HRSI

ENDOBJ

COMMENT FRONT END OF FUSELAGE

RECTAN

CORNER -1, -2, 3

DELTAS 2, 1, 2

SURFACE +X FRSI

SURFACE -X FRSI

SURFACE -Y HRSI

SURFACE -Z FRSI

ENDOBJ

WEDGE

CORNER 0, -1, 3

FACE FRSI -1, 1, 0

LENGTH 1, 1, 2

SURFACE -Z FRSI

ENDOBJ

WEDGE

CORNER 0, -1, 3

FACE FRSI 1, 1, 0

LENGTH 1, 1, 2

SURFACE -Z FRSI

ENDOBJ

TETRAH

CORNER 0, -1, 5

FACE LRSI -1, 1, 1

LENGTH 1

ENDOBJ

TETRAH

CORNER 0, -1, 5

FACE LRSI 1, 1, 1

LENGTH 1

ENDOBJ
WEDGE
CORNER 0,-2,5
FACE LESS 1,0,1
LENGTH 1,1,1
SURFACE +Y LESS
SURFACE -Y LESS
ENDOBJ
WEDGE
CORNER 0,-2,5
FACE LESS -1,0,1
LENGTH 1,1,1
SURFACE +Y LESS
SURFACE -Y LESS
ENDOBJ
COMMENT CARGO BAY
WEDGE
CORNER -1,-2,-3
FACE FRSI 1,1,0
LENGTH 1,1,6
SURFACE -Y HRSI
SURFACE -X FRSI
ENDOBJ
WEDGE
CORNER 1,-2,-3
FACE FRSI -1,1,0
LENGTH 1,1,6
SURFACE -Y HRSI
SURFACE +X FRSI
ENDOBJ
WEDGE
CORNER -1,-2,-5
FACE FRSI -1,1,0
LENGTH 1,1,8
SURFACE -Y HRSI
SURFACE -Z AQUA
ENDOBJ
WEDGE
CORNER 1,-2,-5
FACE FRSI 1,1,0
LENGTH 1,1,8
SURFACE -Y HRSI
SURFACE -Z AQUA
ENDOBJ
TETRAH
CORNER -1,-2,3
FACE FRSI -1,1,1
LENGTH 1
SURFACE -Y HRSI
ENDOBJ
TETRAH
CORNER 1,-2,3
FACE FRSI 1,1,1
LENGTH 1
SURFACE -Y HRSI
ENDOBJ

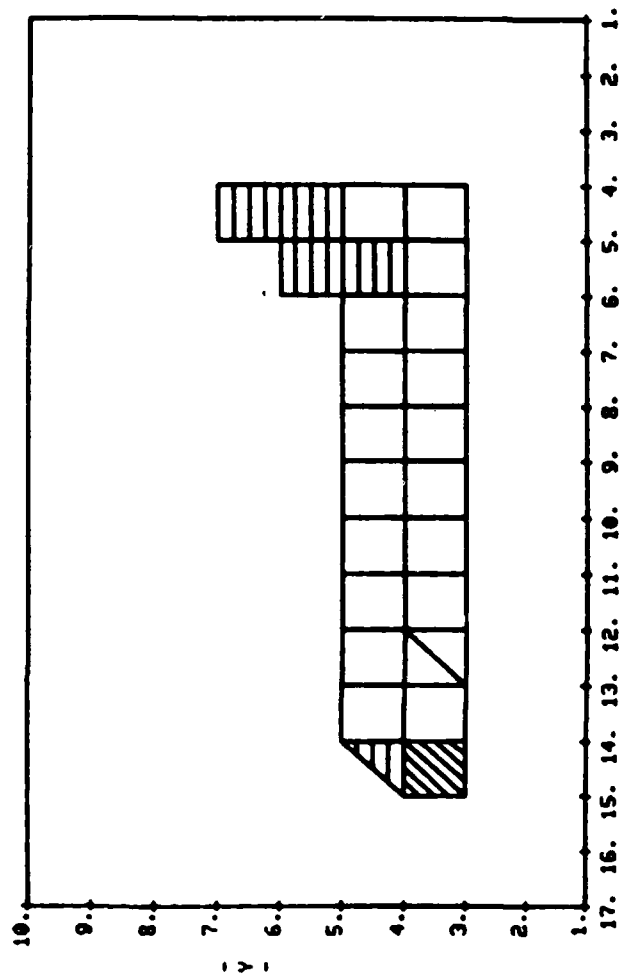
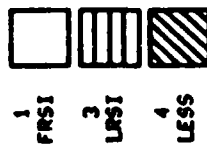
COMMENT CARGO BAY DOORS...OPEN
SLANT
CORNER -1,0,-3
TOP FRSI -1 -1 0
BOTTOM KAPTON
LENGTH 1,1,6
ENDOBJ
SLANT
CORNER 1,0,-3
TOP FRSI 1 -1 0
BOTTOM KAPTON
LENGTH 1,1,6
ENDOBJ
COMMENT TAIL SECTION
RECTAN
CORNER -1,-2,-5
DELTAS 2,2,2
SURFACE +X FRSI
SURFACE -X FRSI
SURFACE +Y FRSI
SURFACE -Y HRSI
SURFACE +Z FRSI
SURFACE -Z AQUA
ENDOBJ
RECTAN
CORNER -1,-1,-4
DELTAS 2,1,1
SURFACE +X LRSI
SURFACE -X LRSI
SURFACE +Y LRSI
SURFACE +Z LRSI
ENDOBJ
COMMENT TAIL RUDDER
PLATE
CORNER 0,0,-5
DELTAS 0,1,2
TOP +X LRSI
BOTTOM -X LRSI
ENDOBJ
PLATE
CORNER 0,1,-5
DELTAS 0,1,1
TOP +X LRSI
BOTTOM -X LRSI
ENDOBJ
COMMENT WINGS
COMMENT PORT WING
PLATE
CORNER -4,-2,-5
DELTAS 3,0,2
TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
PLATE
CORNER -3,-2,-3
DELTAS 2,0,2

TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
COMMENT STARTBOARD WING
PLATE
CORNER 1,-2,-5
DELTAS 3,0,2
TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
PLATE
CORNER 1,-2,-3
DELTAS 2,0,2
TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
ENDSAT

SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE POSITIVE X DIRECTION

FOR X VALUES BETWEEN 1 AND 17

MATERIAL LEGEND

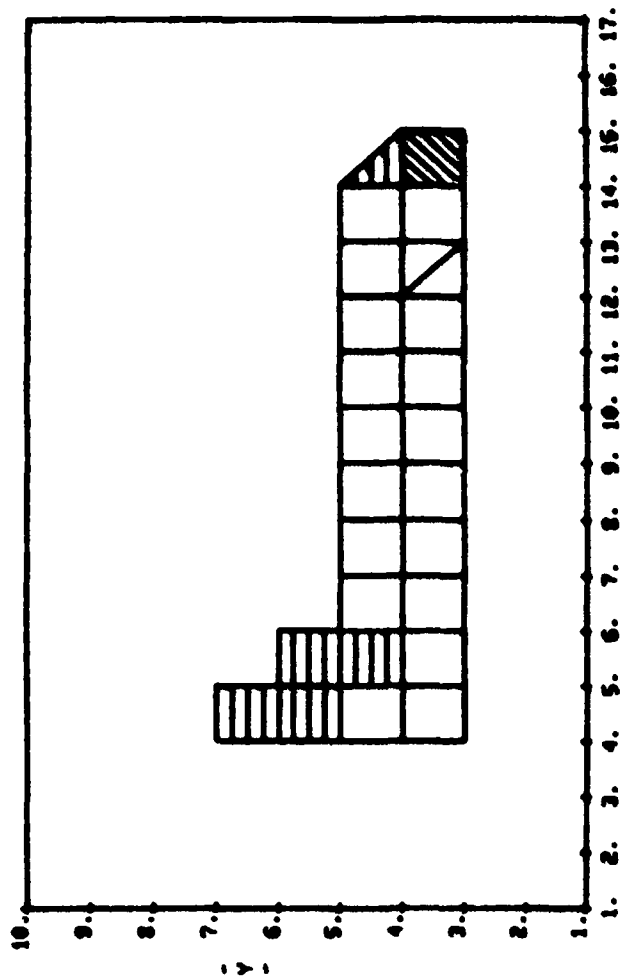
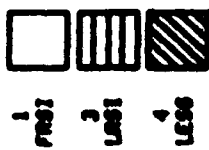


-2-




SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE NEGATIVE X DIRECTION

FOR X VALUES BETWEEN 1 AND 17

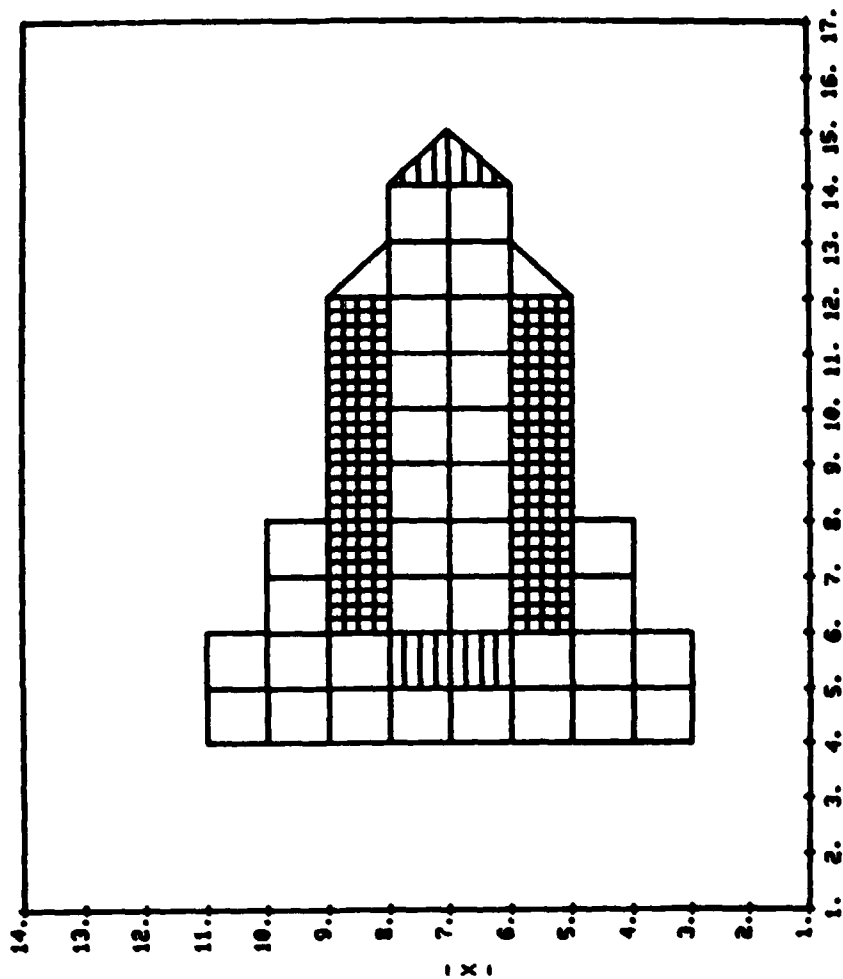
MATERIAL LEGEND



FOR Y VALUES BETWEEN 1 AND 17

1 **3** **6**
FRST **LAST** **KAPT**

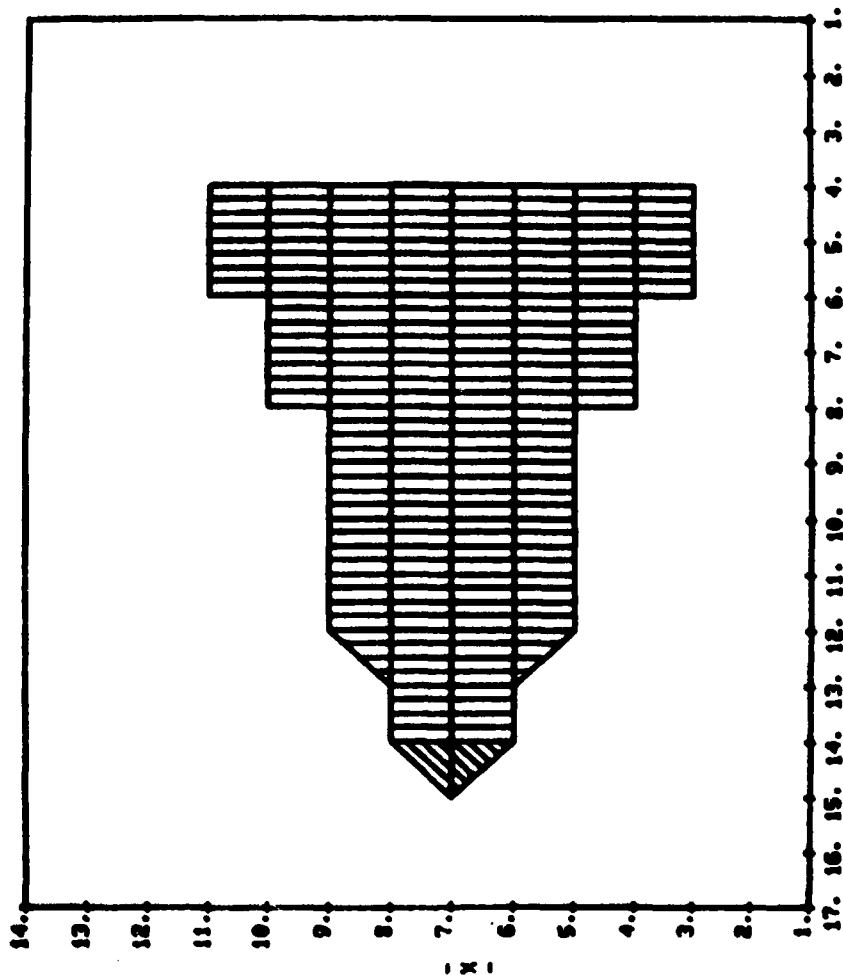


-2-

SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE NEGATIVE Y DIRECTION

FOR Y VALUES BETWEEN 1 AND 17

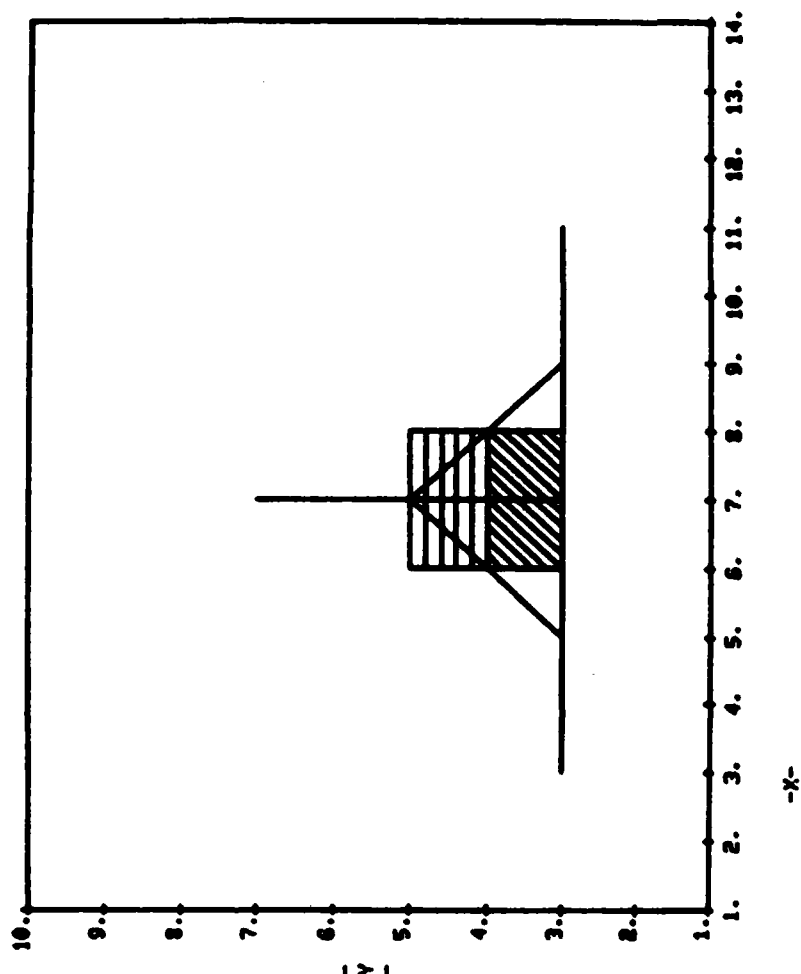
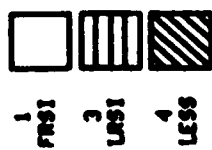
POTENTIAL LEGEND



SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE POSITIVE Z DIRECTION

FOR Z VALUES BETWEEN 1 AND 33

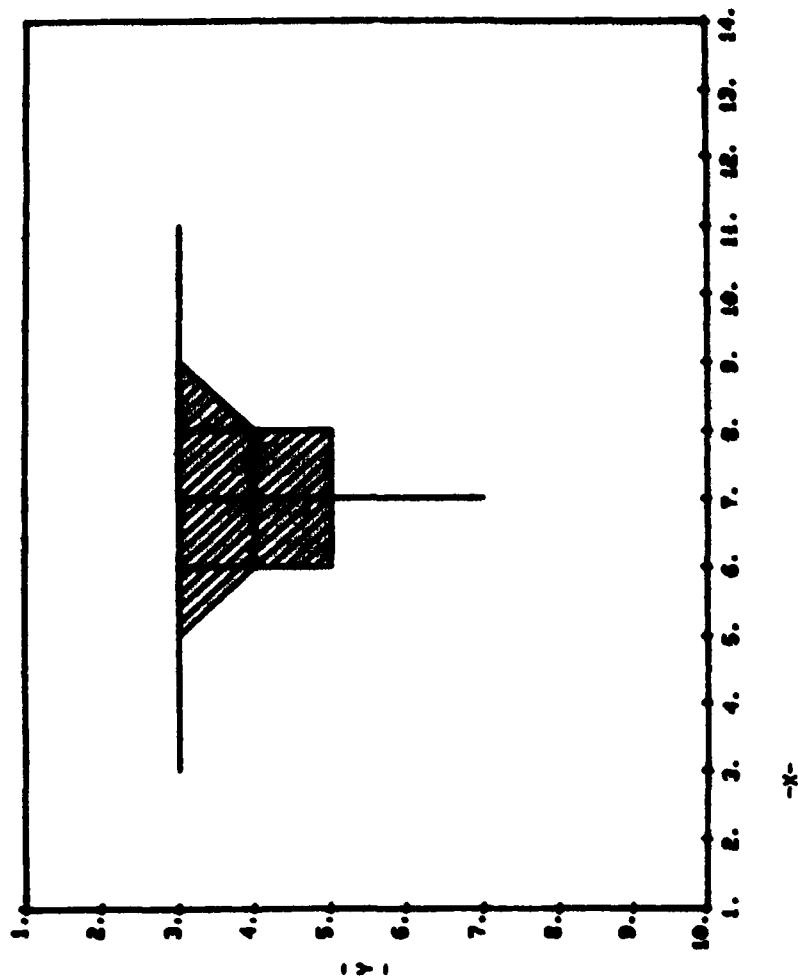
MATERIAL LEGEND

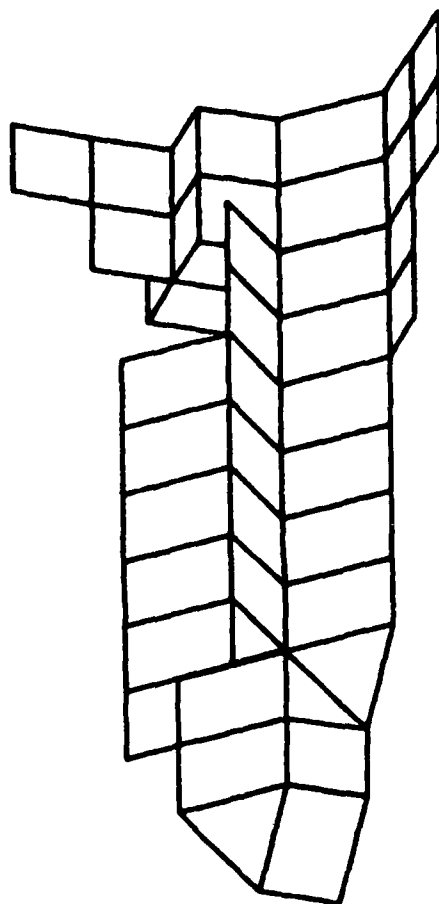


SURFACE CELL MATERIAL COMPOSITION AS VIEWED FROM THE NEGATIVE Z DIRECTION

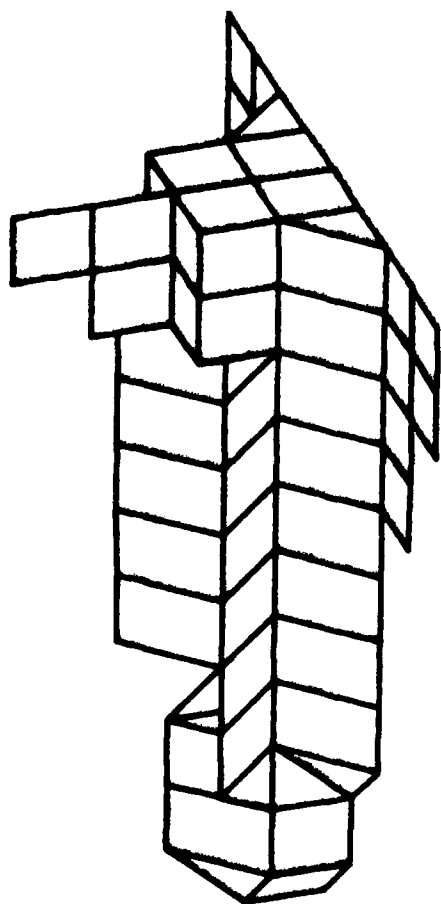
FOR Z VALUES BETWEEN 1 AND 20

MATERIAL LEGEND

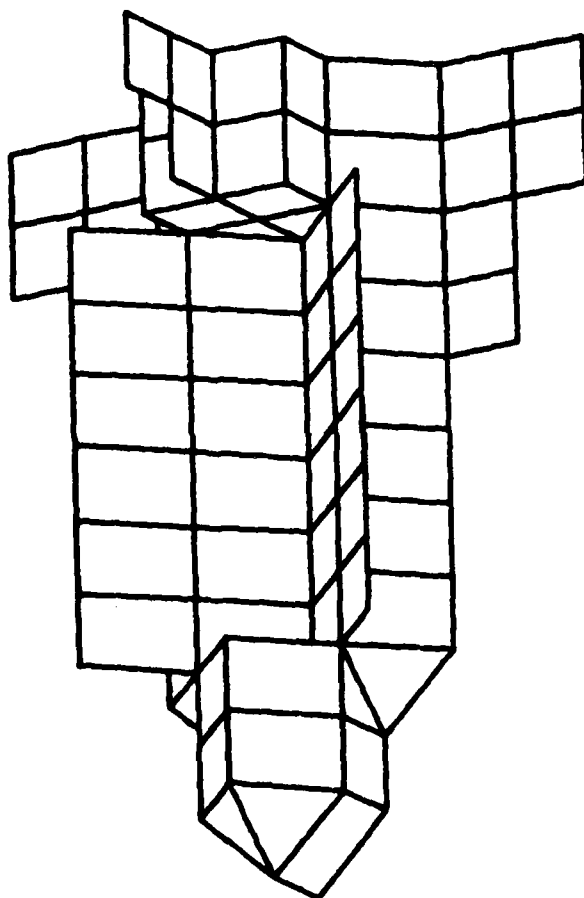


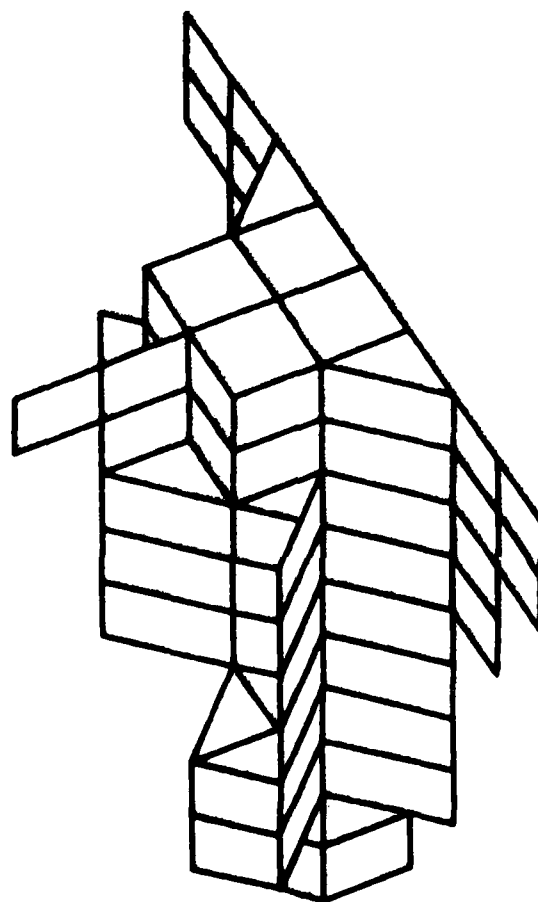


C-99



C-100





Micro Shuttle IGES File Description: MSHUTL.TAP

```

IGES CONSTRUCTION OF MCSHUTTLE.PRT
,,13HMC SHUTTLE.PRT,,24HANVIL-5000, REL 1, REV 0,,32,8,23,11,52,,1.,1,4HIG00000001
NCH,0,,13H877724.124500,,,,;
124      1      1      0      000100 D0000001
124      1      1      1      0000002
410      2      1      1      000100 D0000003
410      3      1      1      0000004
124      3      1      0      000100 D0000005
124      4      1      1      0000006
410      4      1      5      000100 D0000007
410      5      1      1      0000008
124      5      1      0      000100 D0000009
124      6      1      1      0000010
410      6      1      9      000100 D0000011
410      7      1      1      0000012
124      7      1      0      000100 D0000013
124      9      1      2      0000014
410      9      1      13     000100 D0000015
410      10     1      1      0000016
124      10     1      0      000100 D0000017
124      11     1      1      0000018
410      11     1      17     000100 D0000019
410      12     1      1      0000020
124      12     1      0      000100 D0000021
124      13     1      1      0000022
410      13     1      21     000100 D0000023
410      14     1      1      0000024
124      14     1      0      000100 D0000025
124      15     1      1      0000026
410      15     1      25     000100 D0000027
410      16     1      1      0000028
124      16     1      0      000100 D0000029
124      18     1      2      0000030
410      18     1      29     000100 D0000031
410      19     1      1      0000032
124      19     1      0      000100 D0000033
124      22     1      3      0000034
410      22     1      33     000100 D0000035
410      23     1      1      0000036
124      23     1      0      000100 D0000037
124      26     1      3      0000038
410      26     1      37     000100 D0000039
410      27     1      1      0000040
124      27     1      0      000100 D0000041
124      30     1      3      0000042
410      30     1      41     000100 D0000043
410      31     2      1      0000044
116      31     2      1      104     00000000D0000045
116      0      0      1      104     SURF (4) D0000046
110      32     2      1      104     0      00010000D0000047
110      0      0      2      104     0      00010000D0000048
110      34     2      1      104     0      00010000D0000049
110      0      0      2      104     0      00010000D0000050
118      36     2      1      3      0      00000000D0000051
118      0      1      1      1      SURF (5) D0000052
110      37     2      1      3      0      00010000D0000053
110      0      1      2      3      0      00010000D0000054
110      39     2      1      3      0      00010000D0000055
110      0      1      2      0      00000056
118      41     2      1      0      0      00000000D0000057
118      0      0      1      1      SURF (6) D0000058
116      42     2      1      101     0      00000000D0000059
116      0      0      1      101     SURF (7) D0000060
110      43     2      1      101     0      00010000D0000061

```

Micro Shuttle IGES File Description: MSHUTL.TAP

110	0	0	2				D0000062
110	45	2	1	101	0	00010000D0000063	
110	0	0	2				D0000064
118	47	2	1	5	0	00000000D0000065	
118	0	4	1	1		SURF (8)	D0000066
110	48	2	1	5	0	00010000D0000067	
110	0	4	2				D0000068
110	50	2	1	5	0	00010000D0000069	
110	0	4	2				D0000070
118	52	2	1	5	0	00000000D0000071	
118	0	4	1	1		SURF (9)	D0000072
110	53	2	1	5	0	00010000D0000073	
110	0	4	2				D0000074
110	55	2	1	5	0	00010000D0000075	
110	0	4	2				D0000076
118	57	2	1	1	0	00000000D0000077	
118	0	0	1	1		SURF (10)	D0000078
110	58	2	1	1	0	00010000D0000079	
110	0	0	2				D0000080
110	60	2	1	1	0	00010000D0000081	
110	0	0	2				D0000082
118	62	2	1	1	0	00000000D0000083	
118	0	0	1	1		SURF (11)	D0000084
110	63	2	1	1	0	00010000D0000085	
110	0	0	2				D0000086
110	65	2	1	1	0	00010000D0000087	
110	0	0	2				D0000088
118	67	2	1	1	0	00000000D0000089	
118	0	0	1	1		SURF (12)	D0000090
116	68	2	1	101	0	00000000D0000091	
116	0	0	1			SURF (13)	D0000092
110	69	2	1	101	0	00010000D0000093	
110	0	0	2				D0000094
110	71	2	1	101	0	00010000D0000095	
110	0	0	2				D0000096
118	73	2	1	3	0	00000000D0000097	
118	0	2	1	1		SURF (14)	D0000098
110	74	2	1	3	0	00010000D0000099	
110	0	2	2				D0000100
110	76	2	1	3	0	00010000D0000101	
110	0	2	2				D0000102
118	78	2	1	3	0	00000000D0000103	
118	0	2	1	1		SURF (15)	D0000104
110	79	2	1	3	0	00010000D0000105	
110	0	2	2				D0000106
110	81	2	1	3	0	00010000D0000107	
110	0	2	2				D0000108
118	83	2	1	3	0	00000000D0000109	
118	0	2	1	1		SURF (16)	D0000110
110	84	2	1	3	0	00010000D0000111	
110	0	2	2				D0000112
110	86	2	1	3	0	00010000D0000113	
110	0	2	2				D0000114
118	88	2	1	3	0	00000000D0000115	
118	0	2	1	1		SURF (17)	D0000116
116	89	2	1	3	0	00000000D0000117	
116	0	2	1				D0000118
116	90	2	1	3	0	00000000D0000119	
116	0	2	1				D0000120
116	91	2	1	3	0	00000000D0000121	
116	0	2	1				D0000122
116	92	2	1	3	0	00000000D0000123	
116	0	2	1				D0000124
116	93	2	1	3	0	00000000D0000125	

Micro Shuttle IGES File Description: MSHUTL.TAP

116	0	2	1				D0000126
116	94	2	1	3	0	00000000D0000127	
116	0	2	1				D0000128
116	95	2	1	3	0	00000000D0000129	
116	0	2	1				D0000130
116	96	2	1	3	0	00000000D0000131	
116	0	2	1				D0000132
116	97	2	1	101	0	00000000D0000133	
116	0	0	1			SURF (18)	D0000134
110	98	2	1	101	0	00010000D0000135	
110	0	0	2				D0000136
110	100	2	1	101	0	00010000D0000137	
110	0	0	2				D0000138
118	102	2	1	3	0	00000000D0000139	
118	0	2	1	1		SURF (19)	D0000140
110	103	2	1	3	0	00010000D0000141	
110	0	2	2				D0000142
110	105	2	1	3	0	00010000D0000143	
110	0	2	2				D0000144
118	107	2	1	3	0	00000000D0000145	
118	0	2	1	1		SURF (20)	D0000146
110	108	2	1	3	0	00010000D0000147	
110	0	2	2				D0000148
110	110	2	1	3	0	00010000D0000149	
110	0	2	2				D0000150
118	112	2	1	1	0	00000000D0000151	
118	0	0	1	1		SURF (21)	D0000152
110	113	2	1	1	0	00010000D0000153	
110	0	0	2				D0000154
110	115	2	1	1	0	00010000D0000155	
110	0	0	2				D0000156
118	117	2	1	1	0	00000000D0000157	
118	0	0	1	1		SURF (22)	D0000158
110	118	2	1	1	0	00010000D0000159	
110	0	0	2				D0000160
110	120	2	1	1	0	00010000D0000161	
110	0	0	2				D0000162
118	122	2	1	2	0	00000000D0000163	
118	0	1	1	1		SURF (23)	D0000164
116	123	2	1	104	0	00000000D0000165	
116	0	0	1			SURF (24)	D0000166
110	124	2	1	104	0	00010000D0000167	
110	0	0	2				D0000168
110	126	2	1	104	0	00010000D0000169	
110	0	0	2				D0000170
118	128	2	1	3	0	00000000D0000171	
118	0	2	1	1		SURF (25)	D0000172
110	129	2	1	3	0	00010000D0000173	
110	0	2	2				D0000174
110	131	2	1	3	0	00010000D0000175	
110	0	2	2				D0000176
118	133	2	1	0	0	00000000D0000177	
118	0	2	1	1		SURF (26)	D0000178
116	134	2	1	104	0	00000000D0000179	
116	0	0	1			SURF (27)	D0000180
110	135	2	1	104	0	00010000D0000181	
110	0	0	2				D0000182
110	137	2	1	104	0	00010000D0000183	
110	0	0	2				D0000184
118	139	2	1	3	0	00000000D0000185	
118	0	2	1	1		SURF (28)	D0000186
110	140	2	1	3	0	00010000D0000187	
110	0	2	2				D0000188
110	142	2	1	3	0	00010000D0000189	

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110	0	2	2				D0000190
118	144	2	1	0	0	00000000D0000191	
118	0	2	1	1		SURF (29)	D0000192
116	145	2	1	102	0	00000000D0000193	
116	0	0	1			SURF (30)	D0000194
110	146	2	1	102	0	00010000D0000195	
110	0	0	2				D0000196
110	148	2	1	102	0	00010000D0000197	
110	0	0	2				D0000198
118	150	2	1	1	0	00000000D0000199	
118	0	0	1	1		SURF (31)	D0000200
110	151	2	1	1	0	00010000D0000201	
110	0	0	2				D0000202
110	153	2	1	1	0	00010000D0000203	
110	0	0	2				D0000204
118	155	2	1	2	0	00000000D0000205	
118	0	1	1	1		SURF (32)	D0000206
110	156	2	1	2	0	00010000D0000207	
110	0	1	2				D0000208
110	158	2	1	2	0	00010000D0000209	
110	0	1	2				D0000210
118	160	2	1	1	0	00000000D0000211	
118	0	0	1	1		SURF (33)	D0000212
110	161	2	1	1	0	00010000D0000213	
110	0	0	2				D0000214
110	163	2	1	1	0	00010000D0000215	
110	0	0	2				D0000216
118	165	2	1	1	0	00000000D0000217	
118	0	0	1	1		SURF (34)	D0000218
110	166	2	1	1	0	00010000D0000219	
110	0	0	2				D0000220
110	168	2	1	1	0	00010000D0000221	
110	0	0	2				D0000222
118	170	2	1	1	0	00000000D0000223	
118	0	0	1	1		SURF (35)	D0000224
116	171	2	1	102	0	00000000D0000225	
116	0	0	1			SURF (36)	D0000226
110	172	2	1	102	0	00010000D0000227	
110	0	0	2				D0000228
110	174	2	1	102	0	00010000D0000229	
110	0	0	2				D0000230
118	176	2	1	1	0	00000000D0000231	
118	0	0	1	1		SURF (37)	D0000232
110	177	2	1	1	0	00010000D0000233	
110	0	0	2				D0000234
110	179	2	1	1	0	00010000D0000235	
110	0	0	2				D0000236
118	181	2	1	2	0	00000000D0000237	
118	0	1	1	1		SURF (38)	D0000238
110	182	2	1	2	0	00010000D0000239	
110	0	1	2				D0000240
110	184	2	1	2	0	00010000D0000241	
110	0	1	2				D0000242
118	186	2	1	1	0	00000000D0000243	
118	0	0	1	1		SURF (39)	D0000244
110	187	2	1	1	0	00010000D0000245	
110	0	0	2				D0000246
110	189	2	1	1	0	00010000D0000247	
110	0	0	2				D0000248
118	191	2	1	1	0	00000000D0000249	
118	0	0	1	1		SURF (40)	D0000250
110	192	2	1	1	0	00010000D0000251	
110	0	0	2				D0000252
110	194	2	1	1	0	00010000D0000253	

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110	0	0	2				D0000254
118	196	2	1	1	0	00000000	D0000255
118	0	0	1	1		SURF (41)	D0000256
116	197	2	1	104	0	00000000	D0000257
116	0	0	1			SURF (1)	D0000258
110	198	2	1	104	0	00010000	D0000259
110	0	0	2				D0000260
110	200	2	1	104	0	00010000	D0000261
110	0	0	2				D0000262
118	202	2	1	3	0	00000000	D0000263
118	0	1	1	1		SURF (2)	D0000264
110	203	2	1	3	0	00010000	D0000265
110	0	1	2				D0000266
110	205	2	1	3	0	00010000	D0000267
110	0	1	2				D0000268
118	207	2	1	0	0	00000000	D0000269
118	0	0	1	1		SURF (3)	D0000270
116	208	2	1	102	0	00000000	D0000271
116	0	0	1			SURF (42)	D0000272
110	209	2	1	102	0	00010000	D0000273
110	0	0	2				D0000274
110	211	2	1	102	0	00010000	D0000275
110	0	0	2				D0000276
118	213	2	1	1	0	00000000	D0000277
118	0	0	1	1		SURF (43)	D0000278
110	214	2	1	1	0	00010000	D0000279
110	0	0	2				D0000280
110	216	2	1	1	0	00010000	D0000281
110	0	0	2				D0000282
118	218	2	1	2	0	00000000	D0000283
118	0	1	1	1		SURF (44)	D0000284
110	219	2	1	2	0	00010000	D0000285
110	0	1	2				D0000286
110	221	2	1	2	0	00010000	D0000287
110	0	1	2				D0000288
118	223	2	1	1	0	00000000	D0000289
118	0	0	1	1		SURF (45)	D0000290
110	224	2	1	1	0	00010000	D0000291
110	0	0	2				D0000292
110	226	2	1	1	0	00010000	D0000293
110	0	0	2				D0000294
118	228	2	1	1	0	00000000	D0000295
118	0	0	1	1		SURF (46)	D0000296
110	229	2	1	1	0	00010000	D0000297
110	0	0	2				D0000298
110	231	2	1	1	0	00010000	D0000299
110	0	0	2				D0000300
118	233	2	1	1	0	00000000	D0000301
118	0	0	1	1		SURF (47)	D0000302
116	234	2	1	102	0	00000000	D0000303
116	0	0	1			SURF (48)	D0000304
110	235	2	1	102	0	00010000	D0000305
110	0	0	2				D0000306
110	237	2	1	102	0	00010000	D0000307
110	0	0	2				D0000308
118	239	2	1	1	0	00000000	D0000309
118	0	0	1	1		SURF (49)	D0000310
110	240	2	1	1	0	00010000	D0000311
110	0	0	2				D0000312
110	242	2	1	1	0	00010000	D0000313
110	0	0	2				D0000314
118	244	2	1	2	0	00000000	D0000315
118	0	1	1	1		SURF (50)	D0000316
110	245	2	1	2	0	00010000	D0000317

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110	0	1	2				D0000318
110	247	2	1	2	0	00010000D0000319	
110	0	1	2			D0000320	
118	249	2	1	1	0	00000000D0000321	
118	0	0	1	1		SURF (51) D0000322	
110	250	2	1	1	0	00010000D0000323	
110	0	0	2			D0000324	
110	252	2	1	1	0	00010000D0000325	
110	0	0	2			D0000326	
118	254	2	1	1	0	00000000D0000327	
118	0	0	1	1		SURF (52) D0000328	
110	255	2	1	1	0	00010000D0000329	
110	0	0	2			D0000330	
110	257	2	1	1	0	00010000D0000331	
110	0	0	2			D0000332	
118	259	2	1	1	0	00000000D0000333	
118	0	0	1	1		SURF (53) D0000334	
110	260	2	1	1	0	00010000D0000335	
110	0	0	2			D0000336	
110	262	2	1	1	0	00010000D0000337	
110	0	0	2			D0000338	
116	264	2	1	105	0	00000000D0000339	
116	0	0	1			SURF (54) D0000340	
118	265	2	1	4	0	00000000D0000341	
118	0	5	1	1		SURF (55) D0000342	
118	266	2	1	3	0	00000000D0000343	
118	0	0	1	1		SURF (56) D0000344	
110	267	2	1	3	0	00010000D0000345	
110	0	0	2			D0000346	
110	269	2	1	3	0	00010000D0000347	
110	0	0	2			D0000348	
116	271	2	1	105	0	00000000D0000349	
116	0	0	1			SURF (57) D0000350	
118	272	2	1	4	0	00000000D0000351	
118	0	5	1	1		SURF (58) D0000352	
118	273	2	1	3	0	00000000D0000353	
118	0	0	1	1		SURF (59) D0000354	
116	274	2	1	102	0	00000000D0000355	
116	0	0	1			SURF (60) D0000356	
110	275	2	1	102	0	00010000D0000357	
110	0	0	2			D0000358	
110	277	2	1	102	0	00010000D0000359	
110	0	0	2			D0000360	
118	279	2	1	1	0	00000000D0000361	
118	0	0	1	1		SURF (61) D0000362	
110	280	2	1	1	0	00010000D0000363	
110	0	0	2			D0000364	
110	282	2	1	1	0	00010000D0000365	
110	0	0	2			D0000366	
118	284	2	1	1	0	00000000D0000367	
118	0	0	1	1		SURF (62) D0000368	
110	285	2	1	1	0	00010000D0000369	
110	0	0	2			D0000370	
110	287	2	1	1	0	00010000D0000371	
110	0	0	2			D0000372	
118	289	2	1	1	0	00000000D0000373	
118	0	0	1	1		SURF (63) D0000374	
110	290	2	1	1	0	00010000D0000375	
110	0	0	2			D0000376	
110	292	2	1	1	0	00010000D0000377	
110	0	0	2			D0000378	
118	294	2	1	1	0	00000000D0000379	
118	0	0	1	1		SURF (64) D0000380	
110	295	2	1	1	0	00010000D0000381	

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110	0	0	2				D0000382
110	297	2	1	1	0	00010000D0000383	
110	0	0	2			D0000384	
118	299	2	1	1	0	00000000D0000385	
118	0	0	1	1		SURF (65) D0000386	
116	300	2	1	102	0	00000000D0000387	
116	0	0	1			SURF (66) D0000388	
110	301	2	1	102	0	00010000D0000389	
110	0	0	2			D0000390	
110	303	2	1	102	0	00010000D0000391	
110	0	0	2			D0000392	
118	305	2	1	1	0	00000000D0000393	
118	0	0	1	1		SURF (67) D0000394	
110	306	2	1	1	0	00010000D0000395	
110	0	0	2			D0000396	
110	308	2	1	1	0	00010000D0000397	
110	0	0	2			D0000398	
118	310	2	1	1	0	00000000D0000399	
118	0	0	1	1		SURF (68) D0000400	
110	311	2	1	1	0	00010000D0000401	
110	0	0	2			D0000402	
110	313	2	1	1	0	00010000D0000403	
110	0	0	2			D0000404	
118	315	2	1	1	0	00000000D0000405	
118	0	0	1	1		SURF (69) D0000406	
110	316	2	1	1	0	00010000D0000407	
110	0	0	2			D0000408	
110	318	2	1	1	0	00010000D0000409	
110	0	0	2			D0000410	
118	320	2	1	1	0	00000000D0000411	
118	0	0	1	1		SURF (70) D0000412	
110	321	2	1	1	0	00010000D0000413	
110	0	0	2			D0000414	
110	323	2	1	1	0	00010000D0000415	
110	0	0	2			D0000416	
118	325	2	1	1	0	00000000D0000417	
118	0	0	1	1		SURF (71) D0000418	
116	326	2	1	102	0	00000000D0000419	
116	0	0	1			SURF (72) D0000420	
110	327	2	1	102	0	00010000D0000421	
110	0	0	2			D0000422	
110	329	2	1	102	0	00010000D0000423	
110	0	0	2			D0000424	
118	331	2	1	4	0	00000000D0000425	
118	0	3	1	1		SURF (73) D0000426	
110	332	2	1	4	0	00010000D0000427	
110	0	3	2			D0000428	
110	334	2	1	4	0	00010000D0000429	
110	0	3	2			D0000430	
118	336	2	1	1	0	00000000D0000431	
118	0	0	1	1		SURF (74) D0000432	
110	337	2	1	1	0	00010000D0000433	
110	0	0	2			D0000434	
110	339	2	1	1	0	00010000D0000435	
110	0	0	2			D0000436	
118	341	2	1	1	0	00000000D0000437	
118	0	0	1	1		SURF (75) D0000438	
110	342	2	1	1	0	00010000D0000439	
110	0	0	2			D0000440	
110	344	2	1	1	0	00010000D0000441	
110	0	0	2			D0000442	
118	346	2	1	4	0	00000000D0000443	
118	0	3	1	1		SURF (76) D0000444	
110	347	2	1	4	0	00010000D0000445	

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110	0	3	2				D0000446
110	349	2	1	4	0	00010000D0000447	
110	0	3	2				D0000448
118	351	2	1	4	0	00000000D0000449	
118	0	3	1	1		SURF (77)	D0000450
116	352	2	1	102	0	00000000D0000451	
116	0	0	1			SURF (78)	D0000452
110	353	2	1	102	0	00010000D0000453	
110	0	0	2				D0000454
110	355	2	1	102	0	00010000D0000455	
110	0	0	2				D0000456
118	357	2	1	4	0	00000000D0000457	
118	0	3	1	1		SURF (79)	D0000458
110	358	2	1	4	0	00010000D0000459	
110	0	3	2				D0000460
110	360	2	1	4	0	00010000D0000461	
110	0	3	2				D0000462
118	362	2	1	1	0	00000000D0000463	
118	0	0	1	1		SURF (80)	D0000464
110	363	2	1	1	0	00010000D0000465	
110	0	0	2				D0000466
110	365	2	1	1	0	00010000D0000467	
110	0	0	2				D0000468
118	367	2	1	1	0	00000000D0000469	
118	0	0	1	1		SURF (81)	D0000470
110	368	2	1	1	0	00010000D0000471	
110	0	0	2				D0000472
110	370	2	1	1	0	00010000D0000473	
110	0	0	2				D0000474
118	372	2	1	4	0	00000000D0000475	
118	0	3	1	1		SURF (82)	D0000476
110	373	2	1	4	0	00010000D0000477	
110	0	3	2				D0000478
110	375	2	1	4	0	00010000D0000479	
110	0	3	2				D0000480
118	377	2	1	4	0	00000000D0000481	
118	0	3	1	1		SURF (83)	D0000482
116	378	2	1	113	0	00000000D0000483	
116	0	0	1			SURF (88)	D0000484
110	379	2	1	113	0	00010000D0000485	
110	0	0	2				D0000486
110	381	2	1	113	0	00010000D0000487	
110	0	0	2				D0000488
118	383	2	1	11	0	00000000D0000489	
118	0	0	1	1		SURF (89)	D0000490
110	384	2	1	11	0	00010000D0000491	
110	0	0	2				D0000492
110	386	2	1	11	0	00010000D0000493	
110	0	0	2				D0000494
118	388	2	1	11	0	00000000D0000495	
118	0	0	1	1		SURF (90)	D0000496
110	389	2	1	11	0	00010000D0000497	
110	0	0	2				D0000498
110	391	2	1	11	0	00010000D0000499	
110	0	0	2				D0000500
118	393	2	1	11	0	00000000D0000501	
118	0	0	1	1		SURF (91)	D0000502
110	394	2	1	11	0	00010000D0000503	
110	0	0	2				D0000504
110	396	2	1	11	0	00010000D0000505	
110	0	0	2				D0000506
118	398	2	1	12	0	00000000D0000507	
118	0	1	1	1		SURF (92)	D0000508
116	399	2	1	113	0	00000000D0000509	

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116	0	0	1	
110	400	2	1	113
110	0	0	2	
110	402	2	1	113
110	0	0	2	
118	404	2	1	11
118	0	0	1	1
110	405	2	1	11
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118	409	2	1	11
118	0	0	1	1
110	410	2	1	11
110	0	0	2	
110	412	2	1	11
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118	414	2	1	11
118	0	0	1	1
110	415	2	1	11
110	0	0	2	
110	417	2	1	11
110	0	0	2	
118	419	2	1	12
118	0	1	1	1
116	420	2	1	103
116	0	0	1	
110	421	2	1	103
110	0	0	2	
110	423	2	1	103
110	0	0	2	
118	425	2	1	3
118	0	2	1	1
116	426	2	1	103
116	0	0	1	
110	427	2	1	103
110	0	0	2	
110	429	2	1	103
110	0	0	2	
118	431	2	1	3
118	0	2	1	1
116	432	2	1	104
116	0	0	1	
110	433	2	1	104
110	0	0	2	
110	435	2	1	104
110	0	0	2	
118	437	2	1	3
118	0	1	1	1
110	438	2	1	3
110	0	1	2	
110	440	2	1	3
110	0	1	2	
118	442	2	1	0
118	0	1	1	1

124,1.,0.,0.,0.,0.,1.,0.,0.,0.,1.,0.;
410,1;
124,1.,0.,0.,0.,0.,0.,-1.,0.,0.,1.,0.,0.;
410,2;
124,0.,0.,1.,0.,0.,1.,0.,0.,-1.,0.,0.,0.;
410,3;
124,0.866025403784,0.,-0.5,0.,-0.25,0.866025403784,
-0.433012701892,0.,0.433012701892,0.5,0.75,0.;
410,4;

SURF (93)	D0000510
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0	00010000D0000513
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0	00000000D0000515
SURF (94)	D0000516
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SURF (95)	D0000522
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SURF (96)	D0000528
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0	00010000D0000531
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SURF (97)	D0000534
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SURF (98)	D0000536
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SURF (100)	D0000544
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SURF (101)	D0000550
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SURF (102)	D0000552
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	D0000554
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SURF (103)	D0000558
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	LL2 D0000562
0	00000000D0000563
SURF (104)	D0000564
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	00000007P00000004
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	00000015P00000009

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124,-1.,0.,0.,0.,0.,1.,0.,0.,0.,0.,-1.,0.;	00000017P00000010
410,5;	00000019P00000011
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110,14.987668161435,6.987668161435,4.,13.987668161435,	00000423P0000329

Micro Shuttle IGES File Description: MSHUTL.TAP

5.987668161435,4.;	00000423P0000330
118,421,423,0,0;	00000425P0000331
110,13.987668161435,6.987668161435,3.,13.987668161435,	00000427P0000332
5.987668161435,3.;	00000427P0000333
110,13.987668161435,6.987668161435,4.,13.987668161435,	00000429P0000334
5.987668161435,4.;	00000429P0000335
118,427,429,0,0;	00000431P0000336
110,13.987668161435,6.987668161435,3.,14.987668161435,	00000433P0000337
6.987668161435,3.;	00000433P0000338
110,13.987668161435,6.987668161435,4.,14.987668161435,	00000435P0000339
6.987668161435,4.;	00000435P0000340
118,433,435,0,0;	00000437P0000341
110,14.987668161435,6.987668161435,3.,13.987668161435,	00000439P0000342
6.987668161435,3.;	00000439P0000343
110,14.987668161435,6.987668161435,3.,13.987668161435,	00000441P0000344
5.987668161435,3.;	00000441P0000345
118,439,441,0,0;	00000443P0000346
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000445P0000347
6.987668161435,4.;	00000445P0000348
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000447P0000349
5.987668161435,4.;	00000447P0000350
118,445,447,0,0;	00000449P0000351
116,14.321001494768,7.321001494768,3.5;	00000451P0000352
110,14.987668161435,6.987668161435,3.,13.987668161435,	00000453P0000353
7.987668161435,3.;	00000453P0000354
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000455P0000355
7.987668161435,4.;	00000455P0000356
118,453,455,0,0;	00000457P0000357
110,13.987668161435,6.987668161435,3.,13.987668161435,	00000459P0000358
7.987668161435,3.;	00000459P0000359
110,13.987668161435,6.987668161435,4.,13.987668161435,	00000461P0000360
7.987668161435,4.;	00000461P0000361
118,459,461,0,0;	00000463P0000362
110,13.987668161435,6.987668161435,3.,14.987668161435,	00000465P0000363
6.987668161435,3.;	00000465P0000364
110,13.987668161435,6.987668161435,4.,14.987668161435,	00000467P0000365
6.987668161435,4.;	00000467P0000366
118,465,467,0,0;	00000469P0000367
110,14.987668161435,6.987668161435,3.,13.987668161435,	00000471P0000368
6.987668161435,3.;	00000471P0000369
110,14.987668161435,6.987668161435,3.,13.987668161435,	00000473P0000370
7.987668161435,3.;	00000473P0000371
118,471,473,0,0;	00000475P0000372
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000477P0000373
6.987668161435,4.;	00000477P0000374
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000479P0000375
7.987668161435,4.;	00000479P0000376
118,477,479,0,0;	00000481P0000377
116,12.237668161435,5.737668161435,3.25;	00000483P0000378
110,12.987668161435,5.987668161435,3.,11.987668161435,	00000485P0000379
4.987668161435,3.;	00000485P0000380
110,12.987668161435,5.987668161435,3.,11.987668161435,	00000487P0000381
5.987668161435,4.;	00000487P0000382
118,485,487,0,0;	00000489P0000383
110,11.987668161435,5.987668161435,3.,11.987668161435,	00000491P0000384
4.987668161435,3.;	00000491P0000385
110,11.987668161435,5.987668161435,4.,11.987668161435,	00000493P0000386
4.987668161435,3.;	00000493P0000387
118,491,493,0,0;	00000495P0000388
110,12.987668161435,5.987668161435,3.,11.987668161435,	00000497P0000389
5.987668161435,3.;	00000497P0000390
110,12.987668161435,5.987668161435,3.,11.987668161435,	00000499P0000391
5.987668161435,4.;	00000499P0000392
118,497,499,0,0;	00000501P0000393

Micro Shuttle IGES File Description: MSHUTL.TAP

110,12.987668161435,5.987668161435,3.,11.987668161435,	00000503P0000394
5.987668161435,3.;	00000503P0000395
110,12.987668161435,5.987668161435,3.,11.987668161435,	00000505P0000396
4.987668161435,3.;	00000505P0000397
118,503,505,0,0;	00000507P0000398
116,12.237668161435,8.237668161435,3.25;	00000509P0000399
110,12.987668161435,7.987668161435,3.,11.987668161435,	00000511P0000400
8.987668161435,3.;	00000511P0000401
110,12.987668161435,7.987668161435,3.,11.987668161435,	00000513P0000402
7.987668161435,4.;	00000513P0000403
118,511,513,0,0;	00000515P0000404
110,11.987668161435,7.987668161435,3.,11.987668161435,	00000517P0000405
8.987668161435,3.;	00000517P0000406
110,11.987668161435,7.987668161435,4.,11.987668161435,	00000519P0000407
8.987668161435,3.;	00000519P0000408
118,517,519,0,0;	00000521P0000409
110,12.987668161435,7.987668161435,3.,11.987668161435,	00000523P0000410
7.987668161435,3.;	00000523P0000411
110,12.987668161435,7.987668161435,3.,11.987668161435,	00000525P0000412
7.987668161435,4.;	00000525P0000413
118,523,525,0,0;	00000527P0000414
110,12.987668161435,7.987668161435,3.,11.987668161435,	00000529P0000415
7.987668161435,3.;	00000529P0000416
110,12.987668161435,7.987668161435,3.,11.987668161435,	00000531P0000417
8.987668161435,3.;	00000531P0000418
118,529,531,0,0;	00000533P0000419
116,14.237668161435,7.237668161435,4.25;	00000535P0000420
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000537P0000421
7.987668161435,4.;	00000537P0000422
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000539P0000423
6.987668161435,5.;	00000539P0000424
118,537,539,0,0;	00000541P0000425
116,14.237668161435,6.737668161435,4.25;	00000543P0000426
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000545P0000427
5.987668161435,4.;	00000545P0000428
110,14.987668161435,6.987668161435,4.,13.987668161435,	00000547P0000429
6.987668161435,5.;	00000547P0000430
118,545,547,0,0;	00000549P0000431
116,8.987668161435,6.987668161435,3.;	00000551P0000432
110,5.987668161435,5.987668161435,3.,11.987668161435,	00000553P0000433
5.987668161435,3.;	00000553P0000434
110,5.987668161435,7.987668161435,3.,11.987668161435,	00000555P0000435
7.987668161435,3.;	00000555P0000436
118,553,555,0,0;	00000557P0000437
110,5.987668161435,5.987668161435,3.,11.987668161435,	00000559P0000438
5.987668161435,3.;	00000559P0000439
110,5.987668161435,7.987668161435,3.,11.987668161435,	00000561P0000440
7.987668161435,3.;	00000561P0000441
118,559,561,0,0;	00000563P0000442
S0000001G0000002D00000564P0000442	T0000001
\032	
\032	

Micro Shuttle Object Building Block File: MSHUTL.OBB

```

OFFSET  0 0 0
CONDUCTOR      1
PLATE
corner         4         3         6
deltas         6         0         2
bottom -y MA02
top +y  MA01
endobj
CONDUCTOR      1
RECTAN
corner         6         3         4
deltas         2         2         1
surface -z MA05
surface +z MA05
surface -x MA01
surface +x MA01
surface +y MA01
endobj
CONDUCTOR      1
RECTAN
corner         6         3         5
deltas         2         2         1
surface +z MA03
surface -x MA03
surface +x MA03
surface +y MA03
endobj
CONDUCTOR      1
RECTAN
corner         6         3        12
deltas         2         1         2
surface -z MA03
surface +z MA03
surface -x MA01
surface +x MA01
surface -y MA02
endobj
CONDUCTOR      1
PLATE
corner         7         5         4
deltas         0         2         1
bottom -x MA03
top +x  MA03
endobj
CONDUCTOR      1
PLATE
corner         7         5         5
deltas         0         1         1
bottom -x MA03
top +x  MA03
endobj
CONDUCTOR      1
WEDGE
corner         8         3         4
face  MA01  1  1  0
length         1         1         8
surface -z MA02
surface -x MA01
surface +z MA01
surface -y MA01
endobj
CONDUCTOR      1
WEDGE
corner         6         3         4

```

Micro Shuttle Object Building Block File: MSHUTL.OBB

```

face    MA01 -1  1  0
length          1          1          8
surface -z MA02
surface +x MA01
surface +z MA01
surface -y MA01
endobj
CONDUCTOR          1
PLATE
corner          3          3          4
deltas          8          0          2
bottom -y MA02
top +y    MA01
endobj
CONDUCTOR          1
WEDGE
corner          8          3          6
face    MA01 -1  1  0
length          1          1          6
surface -z MA02
surface +x MA01
surface +z MA01
surface -y MA01
endobj
CONDUCTOR          1
WEDGE
corner          6          3          6
face    MA01  1  1  0
length          1          1          6
surface -z MA02
surface -x MA01
surface +z MA01
surface -y MA01
endobj
CONDUCTOR          1
SLANT
corner          9          4          6
top MA06          -1          1          0
bottom MA01
length          1          1          6
endobj
CONDUCTOR          1
SLANT
corner          5          4          6
top MA06          1          1          0
bottom MA01
length          1          1          6
endobj
CONDUCTOR          1
WEDGE
corner          7          4          12
face    MA01  1  1  0
length          1          1          2
surface -z MA01
surface -x MA01
surface +z MA01
surface -y MA01
endobj
CONDUCTOR          1
WEDGE
corner          7          4          12
face    MA01 -1  1  0
length          1          1          2
surface -z MA01

```

Micro Shuttle Object Building Block File: MSHUTL.OBB

```

surface +x MA01
surface +z MA01
surface -y MA01
endobj
CONDUCTOR          1
WEDGE
corner             7          3          14
face  MA04 -1  0  1
length            1          1          1
surface -z MA01
surface +x MA01
surface -y MA04
surface +y MA04
endobj
CONDUCTOR          1
WEDGE
corner             7          3          14
face  MA04  1  0  1
length            1          1          1
surface -z MA01
surface -x MA01
surface -y MA04
surface +y MA04
endobj
CONDUCTOR          1
TETRAH
corner             7          4          14
face  MA03  1  1  1
length            1
endobj
CONDUCTOR          1
TETRAH
corner             7          4          14
face  MA03 -1  1  1
length            1
endobj
CONDUCTOR          1
PLATE
corner             6          3          6
deltas            2          0          6
bottom -y MA02
top +y  MA02
endobj
ENDSAT

```


Micro Shuttle POLAR Object Definition File: MSHUTL.ODF

COMMENT MATERIAL DEFINITIONS
COMMENT FOR PRESENT PURPOSES, ALL PROPERTIES ARE 'KAPTON'
FRSI
3.5,.000127,1.E-16,5.,2.1,.15,71.48,.60,
312.1,1.77,.455,140.,.00002,1.E+16,1.E+4,2.E+3,
1.E-13,1.,1.E+3,20.
HRSI
3.5,.000127,1.E-16,5.,2.1,.15,71.48,.60,
312.1,1.77,.455,140.,.00002,1.E+16,1.E+4,2.E+3,
1.E-13,1.,1.E+3,20.
LRSI
3.5,.000127,1.E-16,5.,2.1,.15,71.48,.60,
312.1,1.77,.455,140.,.00002,1.E+16,1.E+4,2.E+3,
1.E-13,1.,1.E+3,20.
LESS
3.5,.000127,1.E-16,5.,2.1,.15,71.48,.60,
312.1,1.77,.455,140.,.00002,1.E+16,1.E+4,2.E+3,
1.E-13,1.,1.E+3,20.
COMMENT THIN PLATE ALONG SHUTTLE BOTTOM TO
COMMENT SPECIFY BOTTOM AS TOP
PLATE
CORNER -1,-2,-5
DELTAS 2,0,10
BOTTOM +Y FRSI
TOP -Y HRSI
ENDOBJ
COMMENT FRONT END OF FUSELAGE
RECTAN
CORNER -1,-2,3
DELTAS 2,1,2
SURFACE +X FRSI
SURFACE -X FRSI
SURFACE -Y HRSI
SURFACE -Z FRSI
ENDOBJ
WEDGE
CORNER 0,-1,3
FACE FRSI -1,1,0
LENGTH 1,1,2
SURFACE -Z FRSI
ENDOBJ
WEDGE
CORNER 0,-1,3
FACE FRSI 1,1,0
LENGTH 1,1,2
SURFACE -Z FRSI
ENDOBJ
TETRAH
CORNER 0,-1,5
FACE LRSI -1,1,1
LENGTH 1
ENDOBJ
TETRAH
CORNER 0,-1,5
FACE LRSI 1,1,1
LENGTH 1
ENDOBJ
WEDGE
CORNER 0,-2,5
FACE LESS 1,0,1
LENGTH 1,1,1
SURFACE +Y LESS
SURFACE -Y LESS
ENDOBJ

Micro Shuttle POLAR Object Definition File: MSHUTL.ODF

WEDGE
CORNER 0,-2,5
FACE LESS -1,0,1
LENGTH 1,1,1
SURFACE +Y LESS
SURFACE -Y LESS
ENDOBJ
COMMENT CARGO BAY
WEDGE
CORNER -1,-2,-3
FACE FRSI 1,1,0
LENGTH 1,1,6
SURFACE -Y HRSI
SURFACE -X FRSI
ENDOBJ
WEDGE
CORNER 1,-2,-3
FACE FRSI -1,1,0
LENGTH 1,1,6
SURFACE -Y HRSI
SURFACE +X FRSI
ENDOBJ
WEDGE
CORNER -1,-2,-5
FACE FRSI -1,1,0
LENGTH 1,1,8
SURFACE -Y HRSI
SURFACE -Z AQUA
ENDOBJ
WEDGE
CORNER 1,-2,-5
FACE FRSI 1,1,0
LENGTH 1,1,8
SURFACE -Y HRSI
SURFACE -Z AQUA
ENDOBJ
TETRAH
CORNER -1,-2,3
FACE FRSI -1,1,1
LENGTH 1
SURFACE -Y HRSI
ENDOBJ
TETRAH
CORNER 1,-2,3
FACE FRSI 1,1,1
LENGTH 1
SURFACE -Y HRSI
ENDOBJ
COMMENT CARGO BAY DOORS...OPEN
SLANT
CORNER -1,0,-3
TOP FRSI -1 -1 0
BOTTOM KAPTON
LENGTH 1,1,6
ENDOBJ
SLANT
CORNER 1,0,-3
TOP FRSI 1 -1 0
BOTTOM KAPTON
LENGTH 1,1,6
ENDOBJ
COMMENT TAIL SECTION
RECTAN
CORNER -1,-2,-5

Micro Shuttle POLAR Object Definition File: MSHUTL.OOF

DELTAS 2,2,2
SURFACE +X FRSI
SURFACE -X FRSI
SURFACE +Y FRSI
SURFACE -Y HRSI
SURFACE +Z FRSI
SURFACE -Z AQUA
ENDOBJ
RECTAN
CORNER -1,-1,-4
DELTAS 2,1,1
SURFACE +X LRSI
SURFACE -X LRSI
SURFACE +Y LRSI
SURFACE +Z LRSI
ENDOBJ
COMMENT TAIL RUDDER
PLATE
CORNER 0,0,-5
DELTAS 0,1,2
TOP +X LRSI
BOTTOM -X LRSI
ENDOBJ
PLATE
CORNER 0,1,-5
DELTAS 0,1,1
TOP +X LRSI
BOTTOM -X LRSI
ENDOBJ
COMMENT WINGS
COMMENT PORT WING
PLATE
CORNER -4,-2,-5
DELTAS 3,0,2
TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
PLATE
CORNER -3,-2,-3
DELTAS 2,0,2
TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
COMMENT STARTBOARD WING
PLATE
CORNER 1,-2,-5
DELTAS 3,0,2
TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
PLATE
CORNER 1,-2,-3
DELTAS 2,0,2
TOP +Y FRSI
BOTTOM -Y HRSI
ENDOBJ
ENDSAT

Micro Shuttle: VEHICL Run Deck

BATCH

remark MAKEPLOT 2

remark PLOTDIR 3. 1. -2.

remark PLOTDIR 3. 1. 2.

REMARK PLOTDIR 3. 5. 2.

REMARK PLOTDIR 2. 1. -3.

REMARK PLOTDIR 2. 3. -1.

remark PLOTDEST NONE

remark MATPLOTS YES

NXYZ 14 10 17

DXMESH 3.6

PREFIX MICS

END

Micro Shuttle: ORIENT Run Deck

VMACH 0. 0. -1.
end

Micro Shuttle: First NTERAK Run Deck

BATCH
DEFAULT
ISTART NEW
IGICAL yes
EFLDCOR no
NADD 0
remark INPOT PRE
prechg no
POTVAL -50.
VMACH 0.0 0.0 8.0
MAXITS 2
MAXITC 15
POTCON 5
SQALPH 4.0
QBETA 1.0
remark PDIE 2.0
VLTFIX -0.05
RDRMIN 1.0D-20
TEMP 0.1
DENS 1.0E10
DEN2 4.2E6
TEMP2 4.3E3
POWCO 1.4E12
PALPHA 1.2
GAUCO 8.8E5
ENAUT 8.2E3
DELTA 1.8E3
PCUTL 50.0
PCUTH 1000000.0
RATIH 100.0
NXADNB 4
NXADNT 4
NYADNB 4
NYADNT 4
NZADON 3
NZTAIL 8
STHPOT -0.1
DVLIM 500.0
condv 1 -50.
DELTAT 0.3
MAXITT 1
BFIELD ON
IBIAGS(1) 2
IBIAGS(2) 1
IOGRID NO
ISPOUT PART
IOCONG NO
INPOUT NO
PWASON
ENDRUN

Micro Shuttle: Second NTERAK Run Deck

BATCH
DEFAULT
ISTART old
IGICAL old
EFLDCOR no
NADD 0
remark INPOT PRE
prechg no
POTVAL -50.
VMACH 0.0 0.0 8.0
MAXITS 2
MAXITC 15
POTCON 5
SQALPH 4.0
QBETA 1.0
remark PDIE 2.0
VLTFIX -0.05
RDRMIN 1.0D-20
TEMP 0.1
DENS 1.0E10
DEN2 4.2E6
TEMP2 4.3E3
POWCO 1.4E12
PALPHA 1.2
GAUCO 8.8E5
ENAUT 8.2E3
DELTA 1.8E3
PCUTL 50.0
PCUTH 1000000.0
RATIH 100.0
NXADNB 4
NXADNT 4
NYADNB 4
NYADNT 4
NZADON 3
NZTAIL 8
STHPOT -0.1
DVLIM 500.0
condv 1 -50.
DELTAT 0.3
MAXITT 1
BFIELD ON
IBIAGS(1) 2
IBIAGS(2) 1
IOGRID NO
ISPOUT PART
IOCONG NO
INPOUT NO
curren
charge
pwason
ENDRUN

1.00E+00

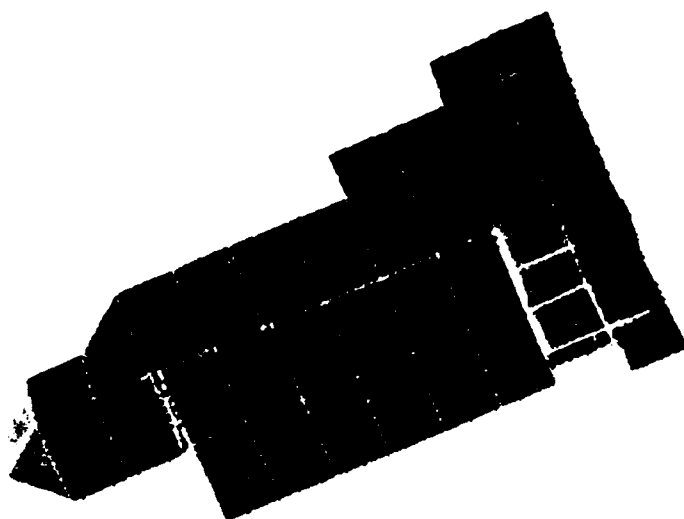
2.75E+00

3.50E+00

4.75E+00

6.00E+00

FUNCTION
PRINTER



VIEW

??

exit

Would you like a hardcopy (0=no,y) ? 1


```

-----POLAR 1.1.1 VEHICLE DEFINITION
segfil called for lun = 21
segfil called for lun = 21
FastIO file opened -- lun = 21
segfil called for lun = 14
segfil called for lun = 27
segfil called for lun = 17
segfil called for lun = 3

```

Someone called agner
ADDITIONAL OUTPUT WILL BE ON UNIT 3.

C-130

Micro Shuttle POLAR 1.1 Results

```

Input - about to read from isat - 20
COMMENT MATERIAL DEFINITIONS
Input - about to read from isat - 20
COMMENT FOR PRESENT PURPOSES, ALL PROPERTIES ARE 'KAPTON'
Input - about to read from isat - 20

FRSI
MATERIAL DEFINED
Input - about to read from isat - 20

HRSI
MATERIAL DEFINED
Input - about to read from isat - 20

LASI
MATERIAL DEFINED
Input - about to read from isat - 20

LESS
MATERIAL DEFINED
Input - about to read from isat - 20

COMMENT THIN PLATE ALONG SHUTTLE BOTTOM TO
Input - about to read from isat - 20
COMMENT SPECIFY BOTTOM AS TOP
Input - about to read from isat - 20

PLATE
THIN PLATE NOW DEFINED.
6CX< 8
3CY< 3
4CZ< 14

C-131
BOTTOM +Y FRSI
TOP -Y HRSI
ENDOBJ
Input - about to read from isat - 20
COMMENT FRONT END OF FUSELAGE
Input - about to read from isat - 20

RECTAN
OBJECT NOW DEFINED.
6CX< 8
3CY< 4
12CZ< 14

SURFACE +X FRSI
SURFACE -X FRSI
SURFACE -Y HRSI
SURFACE -Z FRSI
ENDOBJ
Input - about to read from isat - 20

WEDGE
CORN 7 4 12
FACE FRSI -1 1 0
LENGTH 1,1,2
SURFACE -Z FRSI
ENDOBJ
Input - about to read from isat - 20

WEDGE
CORN 7 4 12
FACE FRSI 1 1 0
LENGTH 1,1,2
SURFACE -Z FRSI
ENDOBJ
Input - about to read from isat - 20

ENDOBJ
Input - about to read from isat - 20

TETRAH
CORN 7 4 14
FACE LASI 1 1 1
LENG 1
ENDOBJ
Input - about to read from isat - 20

WEDGE
CORN 7 3 14
FACE LESS 1 0 1
LENGTH 1,1,1
SURFACE +Y LESS
SURFACE -Y LESS
ENDOBJ
Input - about to read from isat - 20

WEDGE
CORN 7 3 14
FACE LESS -1 0 1
LENGTH 1,1,1
SURFACE +Y LESS
SURFACE -Y LESS
ENDOBJ
Input - about to read from isat - 20

COMMENT CARGO BAY
Input - about to read from isat - 20

WEDGE
CORN 6 3 6
FACE FRSI 1 1 0
LENGTH 1,1,6
SURFACE -Y HRSI
SURFACE -X FRSI
ENDOBJ
Input - about to read from isat - 20

WEDGE
CORN 8 3 6
FACE FRSI -1 1 0
LENGTH 1,1,6
SURFACE -Y HRSI
SURFACE +X FRSI
ENDOBJ
Input - about to read from isat - 20

WEDGE
CORN 6 3 4
FACE FRSI -1 1 0

```

Micro Shuttle POLAR 1.1 Results

```

LENGTH 1,1,0
SURFACE -Y FRSI
SURFACE -S AQUA
ENDOBJ
Input - about to read from isat - 20
WEDGE

CORN 0 3 4
FACE FRSI 1 1 0
LENGTH 1,1,0
SURFACE -Y FRSI
SURFACE -S AQUA
ENDOBJ
Input - about to read from isat - 20
TETRAH

CORN 0 3 12
FACE FRSI -1 1 1
LENG 1
SURFACE -Y FRSI
ENDOBJ
Input - about to read from isat - 20
TETRAH

CORN 0 3 12
FACE FRSI 1 1 1
LENG 1
SURFACE -Y FRSI
ENDOBJ
Input - about to read from isat - 20
COMMENT CARGO BAY DOORS... OPEN
Input - about to read from isat - 20
SLANT

CORN 0 3 6
TOP FRSI -1 -1 0
BOTT RAPT
LENGTH 1,1,6
ENDOBJ
Input - about to read from isat - 20
SLANT

CORN 0 3 6
TOP FRSI 1 -1 0
BOTT RAPT
LENGTH 1,1,6
ENDOBJ
Input - about to read from isat - 20
COMMENT TAIL SECTION
Input - about to read from isat - 20
RECTAN
OBJECT NOW DEFINED.
6<X< 0
3<Y< 5
4<Z< 6

SURFACE +X FRSI
SURFACE -X FRSI
SURFACE +Y FRSI
SURFACE -Y FRSI
SURFACE +Z FRSI
SURFACE -Z FRSI
ENDOBJ
Input - about to read from isat - 20
RECTAN
OBJECT NOW DEFINED.
6<X< 0
4<Y< 5
5<Z< 6

SURFACE +X FRSI
SURFACE -X FRSI
SURFACE +Y FRSI
SURFACE -Y FRSI
SURFACE +Z FRSI
SURFACE -Z FRSI
ENDOBJ
Input - about to read from isat - 20
COMMENT TAIL RUDDER
Input - about to read from isat - 20
PLATE
THIN PLATE NOW DEFINED.
7<X< 7
5<Y< 6
4<Z< 6

TOP +X FRSI
BOTTOM -X FRSI
ENDOBJ
Input - about to read from isat - 20
PLATE
THIN PLATE NOW DEFINED.
7<X< 7
6<Y< 7
4<Z< 5

TOP +X FRSI
BOTTOM -X FRSI
ENDOBJ
Input - about to read from isat - 20
COMMENT WINGS
Input - about to read from isat - 20
COMMENT PORT WING
Input - about to read from isat - 20
PLATE
THIN PLATE NOW DEFINED.
3<X< 6
3<Y< 3
4<Z< 6

TOP +Y FRSI
BOTTOM -Y FRSI
ENDOBJ
Input - about to read from isat - 20
PLATE
THIN PLATE NOW DEFINED.
4<X< 6
3<Y< 5
6<Z< 0

TOP +Y FRSI
BOTTOM -Y FRSI
ENDOBJ
Input - about to read from isat - 20
COMMENT STARTBOARD WING
Input - about to read from isat - 20

```

Micro Shuttle POLAR 1.1 Results

1B, IREC(1B) 2 499
 IA, IJK, JSTUFF 2 50864128 268497024
 ***BUSET WARNING LCEL ALREADY IN CRUF, WITH 1 SLICES DECLARED. DATA IGNORED.
 ***BUSET WARNING SREL ALREADY IN CRUF, WITH 1 SLICES DECLARED. DATA IGNORED.
 WARNINGopenms - MS FILE 11 ALREADY OPEN.
 LISTING -- 152 INSULATING SURFACE CELLS FOUND
 NC DETERMINED BY PGCTWC TO BE 1

PLATE
 THIN PLATE NOW DEFINED.
 8<<< 11
 3<<< 3
 4<<< 6

TOP -Y FRSI
 BOTTOM -Y HRSI
 ENDORSJ
 Input - about to read from Isat - 20

PLATE
 THIN PLATE NOW DEFINED.
 8<<< 10
 3<<< 3
 6<<< 8

TOP -Y FRSI
 BOTTOM -Y HRSI
 ENDORSJ
 Input - about to read from Isat - 20

ENDSAT
 ***** beginning cmprss for 226 surfaces
 ELAPSED: 0 00:00:26.13 CPU: 0:00:18.89 BUFI0: 22 DIRIO: 93 FAULTS: 301
 *** exiting cmprss with 160 surfaces
 ELAPSED: 0 00:00:29.43 CPU: 0:00:22.19 BUFI0: 22 DIRIO: 93 FAULTS: 313
 BEGIN RTSUP
 ELAPSED: 0 00:00:29.61 CPU: 0:00:22.37 BUFI0: 22 DIRIO: 93 FAULTS: 315
 END RTSUP
 ELAPSED: 0 00:00:30.26 CPU: 0:00:22.91 BUFI0: 23 DIRIO: 96 FAULTS: 316

136 VOLUME CELLS NUMBERED BY NUMLTB.
 Fastio file opened -- lun - 17
 CLOSE CALLED FOR LUN- 20
 frefill has been called for unit -
 asgfill called for lun - 19
 Fastio file opened -- lun - 19
 WARNINGopenms - MS FILE 19 ALREADY OPEN.
 CALLING GENMTL

INSIST -- 152 INSULATING SURFACE CELLS FOUND
 FRSI HAS SURFACE RESISTIVITY OF 1.0E+16 OHMS
 HRSI HAS SURFACE RESISTIVITY OF 1.0E+16 OHMS
 LRSI HAS SURFACE RESISTIVITY OF 1.0E+16 OHMS
 LESS HAS SURFACE RESISTIVITY OF 1.0E+16 OHMS
 KAPT HAS SURFACE RESISTIVITY OF 1.0E+16 OHMS

ENDSCE -- 299 SURFACE CONDUCTING EDGES FOUND
 610 ENTRIES IN REVISED VTXL
 END GENMTL
 asgfill called for lun - 18
 asgfill called for lun - 21
 asgfill called for lun - 18
 Fastio file opened -- lun - 18
 AZEDIT REDUCED AZS FROM 120 TO 55.
 2ND PHASE REDUCED AZS FROM 55 TO 47.
 WARNINGopenms - MS FILE 18 ALREADY OPEN.
 asgfill called for lun - 11
 Fastio file opened -- lun - 11
 WARNINGopenms - MS FILE 19 ALREADY OPEN.
 Fastio error -- lostat of 36 on read of lun - 17, 2432 words read out of 9537

26 DOUBLE PTS READ FROM NASCAP
 asgfill called for lun - 23
 Fastio file opened -- lun - 23
 ENDORSJ 4
 84688800 2 117989376 3 151810048 4

Micro Shuttle POLAR 1.1 Results

```

-----POLAR 1.1.1 ORIENT-----
asgfil called for lun = 11
FastIO file opened -- lun = 11
asgfil called for lun = 19
FastIO file opened -- lun = 19

```

```

**ORIENT INPUT SECTION**
THE ORIENTATION ACTION MUST BE DEFINED BEFORE LEAVING.
NEXT CARD PLEASE.
VMACH 0. 0. -1.
NEXT CARD PLEASE.
end
ORIENT-orient is going to rotate grid

```

```

ROTATING DOUBLE PT LIST WITH NUMDUB = 26
asgfil called for lun = 23
FastIO file opened -- lun = 23
NROOT 4
101490688 2 495 3 185360384 4
1B.IREC(1B) 2 151552000 34111488 16512
1A.IJK,JUSTUFF 2
***BUPSET WARNING LCEL ALREADY IN CBUF, WITH 1 SLICES DECLARED. DATA IGNORED.
***BUPSET WARNING SREL ALREADY IN CBUF, WITH 1 SLICES DECLARED. DATA IGNORED.
LISTINS -- 152 INSULATING SURFACE CELLS FOUND
NC DETERMINED BY PGETNC TO BE 1
orient is finished.

```

Micro Shuttle POLAR 1.1 Results

POLAR 1.1.1.1 WTERAK

```
asgfil called for lun = 11
FastIO file opened -- lun = 11
asgfil called for lun = 9
FastIO file opened -- lun = 9
asgfil called for lun = 19
FastIO file opened -- lun = 19
asgfil called for lun = 10
FastIO file opened -- lun = 10
asgfil called for lun = 23
asgfil called for lun = 24
```

INTERAK INPUT SECTION

DEFAULTS SET
NEXT CARD PLEASE.
BATCH
DEFAULT

DEFAULTS SET
I START NEW
**CONDUCTOR VOLTAGES HAVE BEEN RESET TO DEFAULT VALUES.

IGICAL yes
EFIDCOR no
NAUD 0
remark INPUT PRE
prechg no
FOTVAL -50.
VMACH 0.0 0.0 8.0
MAXITS 2
MAXITC 15
POTCON 5
SQALPH 4.0
QBEA 1.0
remark PDJL 2.0
VLTFIX -0.05
RDRMIN 1.0D-20
TEMP 0.1
DENS 1.0E10
DEN2 4.2E6
TEMP2 4.3E3
POWCO 1.4E12
PALPHA 1.2
GAUCO 8.8E5
EMAUT 8.2E3
DELTA 1.8E3
PCUTL 50.0
PCUTH 1000000.0
RATIH 100.0
NNAOWB 4
NNAOWT 4
NNAOWB 4
NNAOWT 4
NNAOWB 3
NNAOWT 8
STHPOT -0.1
DVLIM 500.0
condv 1 -50.
DELTA 0.3
MAXITT 1
BFIELD ON
IBIAGS(1) 2
IBIAGS(2) 1
LOGRID NO
ISPOUT PART
ILOCING NO
INPUT NO
PMASON
CURPOT DEFAULTED TO -0.45*TEMP, -4.5000E-02

Micro Shuttle POLAR 1.1 Results

+++COMPUTATION SPACE+++

THE OBJECT(S) APPEAR TO LIE BETWEEN 2 -	2	14

THE COMP GRID WILL BE SHIFTED BY ONE UNIT IN THE X OR Y DIRECTIONS EVERY IDELX OR IDELY UNITS OF 2

IDEIX - 200 IDELY - 200

SO THE COMP GRID NOW HAS THE FOLLOWING FEATURES:

THE X AND Y GRID GROWTH REQUIRED TO FIT THE OBJECT GRID IN THE DISPLACED COMP GRID IS,

NGRTH = 0 MYGRTH = 0

INDEX - 0 MYCATM - 0

CONSIDERING THE ADD-ONS THE NEW COMP GRID DIMENSIONS ARE:
MX - 22 NY - 10 NZ - 20

MX - 22 MY - 10 NZ - 20

+++SPACECRAFT ENVIRONMENT+++

THE DEBYE LENGTH - 2.3496E-02

THE DIMENSIONLESS DEBYE LENGTH, $De_{DM} = 6.5266E-03$

$$PSIM = LM(SOALPH*DEBYE**2/DX**2) - 8.6774E+00 SOALPH - 4.0000E+00$$

STHROT - -1.0000E-01

CURPOT~ -4.5000E-02 CURPOT/TEMP- -4.5000E-01

BOUNDS ON MATERIAL CROSSOVER POINTS

MATERIAL (#) NUMBER OF PTS VALUES (- TO +)

	1	2	values (-50 +)
PSI	1	2	-5.0000E-02
HASI	2	2	-5.0000E-02
LASI	3	2	-1.0000E+04
LESS	4	2	-5.0000E-02
AQUA	5	2	-5.0000E-02
KAPT	6	2	-5.0000E-02

NAME	RA	DEC	FLUX	TYPE
NGC 1	2	2	-1.0000E+04	-5.0000E-02
IC 1	2	2	-1.0000E+04	-5.0000E-02

LESS	2	-1.0000E+04	-5.0000E-02
2	3		

2	-1.0000E+04	-5.0000E-02
2	-1.0000E+04	-5.0000E-02
2	-1.0000E+04	-5.0000E-02

KAPT	6	-1.0000E+04	-5.0000E-02
KAPT	6	-1.0000E+04	-5.0000E-02

20-70000-6- 40-00000-1-

+++ ENVIRONMENTAL PARAMETERS FOR ELECTRONS +++

PARAMETER	UNIT	VALUE
AMBIENT MAXWELLIAN	TEMP	1.000E+01 EV
ENERGETIC MAXWELLIAN	TEMP	4.300E+03 EV
POWER LAW ELEC	COEF	1.400E+12 ALPHA=
		1.200E+00
		1.000E+10/M3, FLUX=
		5.2907E+140/M2.S
		4.6078E+136/M2.S

CUTOFFS, LOW= 5.000E+01 HIGH 1.0000E+06 PV

FLUX = 3.20E+12 #/M2.S.

GAUSSIAN ELECTRONS, COEF= 0.000E+05 ENAUT= 0.

FLUX= 2.3022E+13 e-/M2.S

+++ ENVIRONMENTAL PARAMETERS

+++ ENVIRONMENTAL PARAMETERS FOR IONS +++

MAXWELLIAN TEMP FOR ALL COMPONENTS = 1.0

RATIO OF IONS TO HYDROGEN = 1.000 ± 0.2 , AMU IONS = 16.00

DENSITIES: DENH = 0.990E+08, DENI = 0.990E+10/M3
FLUXES: FNU0MH = 1.22E+11

VALUES: FLOWIN = 1.223E+11, FLOWMI = 3.056E+120/M2.S.
V THERMAL = 7.7397E+02 M/S

AND THE OBJECT VELOCITY IS 0.0000E+00 0.0000E+00

```

***WARNING***opens - MS FILE !! ALREADY OPEN.

```

SECRET

Micro Shuttle Polar 1.1 Results

NOW WE CAN DO SOME \$CIENCE

***** TIMER CALL FROM SCIENC *****

***** BEFORE INISET AND IONDEN *****

ELAPSED: 0 00:00:11.30 CPU: 0:00:07.50 BUFIO: 12 DIRIO: 130 FAULTS: 371

---CALCULATE INITIAL SURFACE VOLTAGES---

INISET-POTVAL- -5.0000E+01

INISET IS USING THE FOLLOWING CONDUCTOR VOLTAGES

CONDUCTOR (1) - -5.0000E+01 VOLTS

INISET-IONENF,IMAG,BDIR- ON 4.0000E-01 -1.0000E+00 0.0000E+00 0.0000E+00

INISET-VNACH - 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00

THE -VNACH CROSS B ELECTRIC FIELD IS :

EVXB(1) - 0.000E+00 EVXB(Y) - 8.916E-01 EVXB(2) - 0.000E+00

MAGNITUDE - 8.916E-01 VOLTS PER METER

THE ENTIRE SRFV DATA IS AS FOLLOWS

INFORMATION FOR SRFV LENGTH - 158

	0	1	2	3	4	5
1	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
9	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
17	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
25	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
33	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
41	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
49	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
57	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
65	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
73	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
81	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
89	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
97	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
105	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
113	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
121	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
129	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
137	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
145	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01	-5.000000E+01
153	-5.282343E+01	-5.267483E+01	-5.267483E+01	-5.282343E+01	-5.178322E+01	-5.178322E+01

END OF SRFV DATA.

CONDUCTOR VOLTAGES= -5.0000E+01

THE ENTIRE JF1X DATA IS AS FOLLOWS

INFORMATION FOR JF1X LENGTH - 158

	0	1	2	3	4	5
1	0	0	0	0	0	0
9	0	0	0	0	0	0
17	0	0	0	0	0	0
25	0	0	0	0	0	0
33	0	0	0	0	0	0
41	0	0	0	0	0	0
49	0	0	0	0	0	0
57	0	0	0	0	0	0
65	0	0	0	0	0	0
73	0	0	0	0	0	0
81	0	0	0	0	0	0
89	0	0	0	0	0	0
97	0	0	0	0	0	0
105	0	0	0	0	0	0
113	0	0	0	0	0	0
121	0	0	0	0	0	0

129 0 0 0 0 0 0
137 0 0 0 0 0 0
145 0 0 0 0 0 0
153 1 1 1 1 1 1

END OF JF1X DATA.

Micro Shuttle Polar 1.1 Results

```

---CALCULATE THE ION DENSITIES---
ISYCAL WAS SET TO YES
ION MASS IN AMU IS 16.00
ION TO HYDROGEN DENSITY RATIO IS 1.0000E+02
ION MACH VELOCITY IS 0.00 0.00 8.00
HYDROGEN MACH VELOCITY IS 0.00 0.00 2.00
ELAPSED: 0 00:00:19.77 CPU: 0:00:11.07 BUFTO: 24 DIRIO: 313 FAULTS: 466
THETA FACTOR SUM = 1.0000E+00
THETA FACTOR SUM = 1.0001E+00
AVMACH = 8.0 e/mvts = 3.6788E-01
this calculation vs/vi = 1.000000
THETA MAX = 5.1
$$$$$$FROM IONDEN Z= -3 FINISHED
$$$$$FROM IONDEN Z= -2 FINISHED
$$$$$FROM IONDEN Z= -1 FINISHED
$$$$$FROM IONDEN Z= 0 FINISHED
$$$$$FROM IONDEN Z= 1 FINISHED
$$$$$FROM IONDEN Z= 2 FINISHED
$$$$$FROM IONDEN Z= 3 FINISHED
$$$$$FROM IONDEN Z= 4 FINISHED
$$$$$FROM IONDEN Z= 5 FINISHED
$$$$$FROM IONDEN Z= 6 FINISHED
$$$$$FROM IONDEN Z= 7 FINISHED
$$$$$FROM IONDEN Z= 8 FINISHED
$$$$$FROM IONDEN Z= 9 FINISHED
$$$$$FROM IONDEN Z= 10 FINISHED
$$$$$FROM IONDEN Z= 11 FINISHED
$$$$$FROM IONDEN Z= 12 FINISHED
$$$$$FROM IONDEN Z= 13 FINISHED
$$$$$FROM IONDEN Z= 14 FINISHED
$$$$$FROM IONDEN Z= 15 FINISHED
$$$$$FROM IONDEN Z= 16 FINISHED
$$$$$FROM IONDEN Z= 17 FINISHED
$$$$$FROM IONDEN Z= 18 FINISHED
$$$$$FROM IONDEN Z= 19 FINISHED
$$$$$FROM IONDEN Z= 20 FINISHED
$$$$$FROM IONDEN Z= 21 FINISHED
$$$$$FROM IONDEN Z= 22 FINISHED
$$$$$FROM IONDEN Z= 23 FINISHED
$$$$$FROM IONDEN Z= 24 FINISHED
$$$$$FROM IONDEN Z= 25 FINISHED
LEAVING IONDEN, NUMANG = 12
***WARNING***opmas - MS FILE 11 ALREADY OPEN.
***WARNING***opmas - MS FILE 19 ALREADY OPEN.

```

CALCULATE AMBIENT ION CURRENTS

```

***** TIMER CALL FROM SCIENG *****
ELAPSED: 0 00:57:48.96 CPU: 0:56:36.36 BUFTO: 241 DIRIO: 871 FAULTS: 657

```

INFORMATION FOR SRFI LENGTH = 158

	0	1	2	3	4	5
+	3.300114E-06	3.300114E-06	1.366661E-04	1.366661E-04	6.939250E-05	6.939250E-05
1	6.600233E-06	6.600233E-06	9.334114E-06	9.334114E-06	3.300114E-06	6.600233E-06
17	3.300114E-06	6.903408E-05	3.300114E-06	6.903408E-05	9.334114E-06	6.600233E-06
25	6.600233E-06	6.600233E-06	9.334114E-06	2.231644E-09	6.600233E-06	6.600233E-06
33	9.334114E-06	9.334114E-06	3.102252E-06	3.102252E-06	9.334114E-06	6.600233E-06
41	6.600233E-06	6.600233E-06	9.334114E-06	2.240048E-06	3.240048E-06	6.600233E-06
49	9.334114E-06	9.334114E-06	6.600233E-06	6.600233E-06	9.334114E-06	6.600233E-06
57	2.115717E-07	9.334114E-06	9.334114E-06	7.368141E-07	7.368141E-07	9.334114E-06
65	6.600233E-06	6.600233E-06	9.334114E-06	6.600233E-06	6.600233E-06	6.600233E-06
73	9.334114E-06	9.334114E-06	1.505644E-06	1.505644E-06	9.334114E-06	6.600233E-06
81	6.600233E-06	9.334114E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06
89	9.334114E-06	9.334114E-06	8.476383E-06	8.476383E-06	6.600233E-06	6.600233E-06
97	6.600233E-06	9.263464E-06	6.637925E-05	6.637925E-05	9.263464E-06	6.600233E-06
105	9.263464E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06
113	6.600233E-06	9.045468E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06
121	9.045468E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06
129	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06
137	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06
145	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06	6.600233E-06
153	2.278535E-06	1.460507E-08	1.460507E-08	2.278535E-06	2.278535E-06	1.529284E-08

TOTAL ION CURRENT = 1.6499E-03 AMPS

```

***** TIMER CALL FROM SCIENG *****
ELAPSED: 0 00:57:52.56 CPU: 0:56:36.00 BUFTO: 244 DIRIO: 953 FAULTS: 663

```

DOUBLE POINT POTENTIALS

WORD.	TOP.	BOTTOM
24777	-5.0000E+01	-5.0100E+01
28773	-5.0000E+01	-5.0000E+01
28936	-5.0000E+01	-5.0000E+01
28938	-5.0000E+01	-5.0000E+01
12969	-5.0000E+01	-5.0000E+01
33032	-5.0000E+01	-5.0000E+01
33034	-5.0000E+01	-5.0000E+01
37065	-5.0000E+01	-5.0000E+01
37178	-5.0000E+01	-5.0000E+01
37130	-5.0000E+01	-5.0000E+01
41161	-5.0000E+01	-5.0000E+01
41224	-5.0000E+01	-5.0000E+01
41226	-5.0000E+01	-5.0000E+01
45255	-5.0000E+01	-5.0000E+01
45257	-5.0000E+01	-5.0000E+01
45259	-5.0000E+01	-5.0000E+01
45370	-5.0000E+01	-5.0000E+01
45372	-5.0000E+01	-5.0000E+01
49451	-5.0000E+01	-5.0000E+01
49353	-5.0000E+01	-5.0000E+01
49355	-5.0000E+01	-5.0000E+01
53446	-5.0000E+01	-5.0000E+01
53447	-5.0000E+01	-5.0000E+01
53451	-5.0000E+01	-5.0000E+01
53452	-5.0000E+01	-5.0000E+01
53577	-5.0000E+01	-5.0000E+01
0	-5.0000E+01	-5.0000E+01

Micro Shuttle POLAR 1.1 Results

CALCULATE SPACE POTENTIALS (PMASON)
THIS IS CYCLE 1 OF PMASON

***** TIMER CALL FROM SCIENCE *****

***** BEFORE PMASON *****
ELAPSED: 0 00:27:54.35 CPU: 0:56:56.80 BUFIO: 252 DIRIO: 964 FAULTS: 666
leaver= 0
POTENTIALS will be found with a RMS error convergence limit = 5.0000E-02
MAXITC = 15 MAXITS = 2
INITIAL RDOTR=0.177593D+06

***CONGRD ITERATION 1 COPROD OF U DOT MU
UDOTMU = 9.630D+05 A = 1.844E-01 B = 2.278E-02
RDOTR = 4.04550D+03
ORIGINAL RDOTR = 1.77593E+03
LAST RDOTR = 1.77593E+03
(RDOTR ORIGINAL)/(RDOTR NEW) = 4.38990E+01
LOG 10 OF RDOTR RATIO - CONV = 1.64745E+00 POTCON = 5.00000E+00

***CONGRD ITERATION 2 COPROD OF U DOT MU
UDOTMU = 2.395D+04 A = 1.689E-01 B = 3.417E-02
RDOTR = 1.38242D+02
ORIGINAL RDOTR = 1.77593E+03
LAST RDOTR = 4.04550D+03
(RDOTR ORIGINAL)/(RDOTR NEW) = 1.28466E+03
LOG 10 OF RDOTR RATIO - CONV = 3.10879E+00 POTCON = 5.00000E+00

***CONGRD ITERATION 3 COPROD OF U DOT MU
UDOTMU = 7.950D+02 A = 1.739E-01 B = 2.624E-02
RDOTR = 3.62785D+00
ORIGINAL RDOTR = 1.77593E+03
LAST RDOTR = 1.38242D+02
(RDOTR ORIGINAL)/(RDOTR NEW) = 4.89528E+04
LOG 10 OF RDOTR RATIO - CONV = 4.68978E+00 POTCON = 5.00000E+00

***CONGRD ITERATION 4 COPROD OF U DOT MU
UDOTMU = 2.112D+01 A = 1.718E-01 B = 3.126E-02
RDOTR = 1.13395D-01
ORIGINAL RDOTR = 1.77593E+03
LAST RDOTR = 3.62785D+00
(RDOTR ORIGINAL)/(RDOTR NEW) = 1.56614E+06
LOG 10 OF RDOTR RATIO - CONV = 6.19483E+00 POTCON = 5.00000E+00
\$\$\$CONGRD - RDOTR/RDONG = 0.113395D+00/0.177593E+06 RDRAIN = 0.100000D-19
AFTER 4 ITERATIONS

CONGRD SATISFACTORIALLY CONVERGED

AFTER CONGRD, TOTAL SPCHG ITERATION COUNT, ITSPST = 1, 1TH ITERATION FOR THIS RUN
GREETINGS FROM POTSET

DOUBLE POINT POTENTIALS
WORD, TOP, BOTTOM
24777 -5.0000E+01 -5.0000E+01
28873 -5.0000E+01 -5.0000E+01
28936 -5.0000E+01 -5.0000E+01
28936 -5.0000E+01 -5.0000E+01
32969 -5.0000E+01 -5.0000E+01
33032 -5.0000E+01 -5.0000E+01
37065 -5.0000E+01 -5.0000E+01
37128 -5.0000E+01 -5.0000E+01
37130 -5.0000E+01 -5.0000E+01
41161 -5.0000E+01 -5.0000E+01
41224 -5.0000E+01 -5.0000E+01
41226 -5.0000E+01 -5.0000E+01
45257 -5.0000E+01 -5.0000E+01
45259 -5.0000E+01 -5.0000E+01
45320 -5.0000E+01 -5.0000E+01
45322 -5.0000E+01 -5.0000E+01
49353 -5.0000E+01 -5.0000E+01
49353 -5.0000E+01 -5.0000E+01

49355 -5.0000E+01 -5.0000E+01
53446 -5.0000E+01 -5.0000E+01
53447 -5.0000E+01 -5.0000E+01
53451 -5.0000E+01 -5.0000E+01
53452 -5.0000E+01 -5.0000E+01
53577 -5.0000E+01 -5.0000E+01
0 -5.0000E+01 -5.0000E+01
INITIAL RDOTR=0.285159D+04
***CONGRD ITERATION 1 COPROD OF U DOT MU
UDOTMU = 1.688D+04 A = 1.689E-01 B = 2.646E-02
RDOTR = 7.54394D+01
ORIGINAL RDOTR = 2.85159E+03
LAST RDOTR = 2.85159D+03
(RDOTR ORIGINAL)/(RDOTR NEW) = 3.77997E+01
LOG 10 OF RDOTR RATIO - CONV = 1.57749E+00 POTCON = 5.00000E+00
***CONGRD ITERATION 2 COPROD OF U DOT MU
UDOTMU = 4.448D+02 A = 1.696E-01 B = 3.323E-02
RDOTR = 2.50657D+00
ORIGINAL RDOTR = 2.85159E+03
LAST RDOTR = 7.54394D+01
(RDOTR ORIGINAL)/(RDOTR NEW) = 1.13764E+03
LOG 10 OF RDOTR RATIO - CONV = 3.05601E+00 POTCON = 5.00000E+00
***CONGRD ITERATION 3 COPROD OF U DOT MU
UDOTMU = 1.396D+01 A = 1.796E-01 B = 3.234E-02
RDOTR = 8.10669D-02
ORIGINAL RDOTR = 2.85159E+03
LAST RDOTR = 2.50657D+00
(RDOTR ORIGINAL)/(RDOTR NEW) = 3.51757E+04
LOG 10 OF RDOTR RATIO - CONV = 4.54624E+00 POTCON = 5.00000E+00
***CONGRD ITERATION 4 COPROD OF U DOT MU
UDOTMU = 4.795D-01 A = 1.691E-01 B = 2.726E-02
RDOTR = 2.20951D-03
ORIGINAL RDOTR = 2.85159E+03
LAST RDOTR = 8.10669D-02
(RDOTR ORIGINAL)/(RDOTR NEW) = 1.29060E+06
LOG 10 OF RDOTR RATIO - CONV = 6.11079E+00 POTCON = 5.00000E+00
\$\$\$CONGRD - RDOTR/RDONG = 0.220951D-02/0.285159E+04 RDRAIN = 0.100000D-19
AFTER 4 ITERATIONS

CONGRD SATISFACTORIALLY CONVERGED

AFTER CONGRD, TOTAL SPCHG ITERATION COUNT, ITSPST = 2, 2TH ITERATION FOR THIS RUN
GREETINGS FROM POTSET

DOUBLE POINT POTENTIALS
WORD, TOP, BOTTOM
24777 -5.0000E+01 -5.0000E+01
28873 -5.0000E+01 -5.0000E+01
28936 -5.0000E+01 -5.0000E+01
28936 -5.0000E+01 -5.0000E+01
32969 -5.0000E+01 -5.0000E+01
33032 -5.0000E+01 -5.0000E+01
37065 -5.0000E+01 -5.0000E+01
37128 -5.0000E+01 -5.0000E+01
37130 -5.0000E+01 -5.0000E+01
41161 -5.0000E+01 -5.0000E+01
41224 -5.0000E+01 -5.0000E+01
41226 -5.0000E+01 -5.0000E+01
45257 -5.0000E+01 -5.0000E+01
45259 -5.0000E+01 -5.0000E+01
45320 -5.0000E+01 -5.0000E+01
45322 -5.0000E+01 -5.0000E+01
49353 -5.0000E+01 -5.0000E+01
49353 -5.0000E+01 -5.0000E+01
53446 -5.0000E+01 -5.0000E+01
53447 -5.0000E+01 -5.0000E+01
53451 -5.0000E+01 -5.0000E+01

Micro Shuttle Polar 1.1 Results

POT INFORMATION FOR SLICE 1208 - 11

-->X IS HORIZONTAL. Y IS VERTICAL<--

[illegible]

POT INFORMATION FOR SLICE IZOB - 13

--->X IS HORIZONTAL, Y IS VERTICAL<---

[illegible]

POT INFORMATION FOR SLICE: ZCR = 12

---X IS HORIZONTAL: Y IS VERTICAL---

[illegible]

EC: INFORMATION FOR SLICE 1ZOB .. 14

--\X IS HORIZONTAL, \ IS VERTICAL; + --

[illegible]

Micro Shuttle Polar 1.1 Results

[illegible]

PCT INFORMATION FOR SLICE 12CB - 24

-->X IS HORIZONTAL, Y IS VERTICAL--

[illegible]

POT INFORMATION FOR SLICE 120B - 23

-->X IS HORIZONTAL. Y IS VERTICAL<--

[illegible]

[illegible]

```
-->X IS HORIZONTAL, Y IS VERTICAL<--
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```
-->X IS HORIZONTAL, Y IS VERTICAL<--
```

	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
15	1.7	1.8	1.9												
16															
17															
18															
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CUSTOMER INFORMATION FOR SLICE 120B - 14

---X IS HORIZONTAL. Y IS VERT:CAL:--

	15	16	17	18	19	-2	-1	0	1	2	3	4	5	6	7	8	9	10
4	1 E-6	-1.29	-0.97	-0.93	-0.93	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92	-0.92	-0.91	-0.91	-0.91	-0.91
3	0.93	-0.93	-0.97	-1.29	-0.76	-1.62	-1.60	-1.60	-1.59	-1.56	-1.48	-1.30	-1.02	-0.69	-0.46	-0.46	-0.69	-0.69
2	1.3 E-7	-0.96	-2.75	-1.16	-0.93	-1.76	-2.75	-9.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	1.61	-1.76	-2.75	-9.69	0.00	-0.03	0.04	0.34	1.06	2.26	3.76	5.24	6.38	7.09	7.41	7.41	7.09	7.09
0	2.7 E-6	-0.93	-0.18	-0.03	0.00	-0.03	0.04	0.34	1.06	2.26	3.76	5.24	6.38	7.09	7.41	7.41	7.09	7.09
-1	1.06	0.32	-0.10	-0.93	0.00	0.00	0.03	0.21	0.68	1.49	2.53	3.55	4.35	4.85	5.08	5.08	4.85	4.85
-2	0.68	0.21	-0.02	-0.09	0.00	0.00	0.01	0.06	0.33	0.86	1.57	2.22	2.69	2.97	3.07	3.07	2.97	2.97
-3	0.33	0.06	0.01	-0.01	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.93	1.87	1.87
-4	1.3 E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.87	1.87
-5	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.87	1.87
-6	1.3 E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.87	1.87
-7	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.87	1.87
-8	1.3 E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.87	1.87
-9	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.87	1.87
-10	1.3 E-3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.49	0.98	1.41	1.76	1.87	1.93	1.87	1.87

[illegible]

---Y IS HORIZONTAL? Y IS VERTICAL?---

---Y IS HORIZONTAL? Y IS VERTICAL?---

	15	16	17	18	19	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
1	-4.1	-6.2	-6.9	-7.2	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3	-7.3
2	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93	-0.93
3	1.8	1.7	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1
4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
5	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
7	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
9	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
10	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
11	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
12	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
13	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
14	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
15	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
16	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
17	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
18	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
19	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
20	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
21	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3
22	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6
23	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2					

51 - 1208 INFORMATION FOR SLICE 1208 - 15

-->X IS HORIZONTAL. Y IS VERTICAL<--

Micro Shuttle Polar 1.1 Results

0.11 0.04 0.00 -0.02 0.00
 4 1.E -3 -0.09 -0.02 0.00
 5 1.E -6 -0.02 -0.16 -0.07 0.03 0.10 0.29 0.77 1.52 2.91 2.68 6.26 0.95 -4.08 0.95
 6 1.E -6 -0.02 -0.16 -0.02 0.02 0.09 0.20 0.58 1.04 1.79 3.25 3.88 2.97 2.75 2.97
 7 1.E -6 -0.02 -0.16 -0.02 0.01 0.05 0.14 0.30 0.65 0.96 1.74 3.19 1.30 2.36 2.36 1.70
 8 1.E -6 -0.02 -0.16 -0.03 0.01 0.03 0.07 0.16 0.37 0.56 1.03 1.36 2.79 2.00 2.00 2.29
 9 1.E -6 -0.02 -0.16 -0.03 0.00 0.03 0.04 0.10 0.18 0.27 0.61 0.86 1.16 1.33 1.33 1.16
 10 1.E -7 -0.24 -1.60 -0.29 -0.06 0.00 0.14 0.43 0.72 1.63 2.08 3.17 3.96 4.48 4.48 3.96
 11 1.E -7 -0.25 -1.62 -0.32 -0.10 -0.06 -0.02 0.09 0.33 0.60 0.87 1.06 1.46 1.77 1.77 1.46
 12 1.E -7 -0.25 -1.62 -0.32 -0.10 -0.06 -0.02 0.09 0.33 0.60 0.87 1.06 1.46 1.77 1.77 1.46
 13 1.E -7 -0.25 -1.62 -0.32 -0.10 -0.06 -0.02 0.09 0.33 0.60 0.87 1.06 1.46 1.77 1.77 1.46
 14 1.E -6 -0.02 -0.16 -0.03 0.01 0.03 0.07 0.16 0.37 0.56 1.03 1.36 2.79 2.00 2.00 2.29
 15 1.E -1 -0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

QUAD INFORMATION FOR SLICE 120B - 22

--X IS HORIZONTAL, Y IS VERTICAL--

15 16 17 18 19
 -4 1.E -6 -1.29 -0.97 -0.94 -0.93 -0.92 -0.91 -0.90 -0.89 -0.88 -0.87 -0.86 -0.85 -0.84 -0.83 -0.82
 -0.80 -0.79 -0.78 -0.77 -0.76 -0.75 -0.74 -0.73 -0.72 -0.71 -0.70 -0.69 -0.68 -0.67 -0.66 -0.65
 -3 1.E -7 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 -2 1.E -6 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 -1 1.E -6 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 0 1.E -6 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

QUAD INFORMATION FOR SLICE 120B - 23

--X IS HORIZONTAL, Y IS VERTICAL--

15 16 17 18 19
 -4 1.E -6 -1.29 -0.97 -0.94 -0.93 -0.92 -0.91 -0.90 -0.89 -0.88 -0.87 -0.86 -0.85 -0.84 -0.83 -0.82
 -0.80 -0.79 -0.78 -0.77 -0.76 -0.75 -0.74 -0.73 -0.72 -0.71 -0.70 -0.69 -0.68 -0.67 -0.66 -0.65
 -3 1.E -7 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 -2 1.E -6 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 -1 1.E -6 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 0 1.E -6 -0.93 -0.73 -0.66 -0.65 -0.64 -0.63 -0.62 -0.61 -0.60 -0.59 -0.58 -0.57 -0.56 -0.55 -0.54
 -0.53 -0.52 -0.51 -0.50 -0.49 -0.48 -0.47 -0.46 -0.45 -0.44 -0.43 -0.42 -0.41 -0.40 -0.39 -0.38
 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Micro Shuttle POLAR 1.1 Results

```

8 1.E-07 -9.69-2.74 -1.69 -1.34 -0.92 0.00 1.09 1.56 2.85 -0.67 1.25 5.80 -5.80 1.25
-0.02 -1.08 -2.50 -9.49 0.00
9 1.E-07 -9.69-2.74 -1.73 -1.45 -1.22 -1.02 -0.85 -0.17 0.32 1.80 2.62 5.37 5.32 5.37
-0.87 -1.18 -2.37 -9.56 0.00
10 1.E-07 -9.69-2.75 -1.75 -1.56 -1.44 -1.37 -0.94 -0.71 0.34 -0.15 1.20 0.05 2.53 2.53 0.05
-0.96 -1.53 -2.59 -9.64 0.00
11 1.E-07 -9.69-2.76 -1.78 -1.62 -1.54 -1.45 -1.26 -1.47 -0.78 -0.66 -0.72 0.30 -0.95 -0.95 0.30
-1.27 -1.61 -2.69 -9.68 0.00
12 1.E-07 -9.73-2.86 -1.91 -1.78 -1.74 -1.69 -1.56 -1.47 -1.41 -1.39 -0.90 -1.06 -0.95 -0.95 -1.06
-1.57 -1.84 -2.84 -9.73 0.00
13 1.E-06 -1.00 -0.36 -0.29 -0.28 -0.27 -0.27 -0.27 -0.26 -0.25 -0.25 -0.25 -0.23 -0.23 -0.23 -0.25
-0.27 -0.28 -0.36 -1.00 0.00
14 1.E-06 -1.30 -1.00 -0.97 -0.97 -0.97 -0.97 -0.97 -0.97 -0.97 -0.96 -0.96 -0.95 -0.96 -0.96 -0.95
-0.97 -0.97 -1.00 -1.30 0.00
15 1.E-06 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00

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CODE INFORMATION FOR SLICE 1208 - 25

-->X IS HORIZONTAL, Y IS VERTICAL--

```

15 16 17 18 19
-4 1.E-06 -1.44 -1.30 -1.29 -1.29 -1.30 -1.35 -1.50 -1.59 -1.73 -1.85 -2.23 -2.33 -2.33 -2.73
-1.35 -1.30 -1.31 -1.44 0.00
3 1.E-06 -1.30 -1.00 -0.97 -0.96 -0.99 -1.02 -1.10 -1.15 -1.46 -1.82 -2.35 -2.58 -2.80 -2.80 -2.58
-1.10 -1.03 -1.03 -1.30 0.00
2 1.E-06 -1.29 -0.97 -0.93 -0.94 -0.95 -1.01 -1.24 -1.73 -2.45 -2.88 -3.42 -3.88 -4.12 -4.12 -3.88
-1.24 -1.02 -0.99 -1.30 0.00
1 1.E-06 -1.29 -0.97 -0.93 -0.94 -1.00 -1.20 -1.55 -2.31 -3.75 -4.81 -6.94 -7.69 -8.70 -8.70 -7.69
-1.55 -1.21 -1.04 -1.31 0.00
0 1.E-05 -0.13 -0.10 -0.09 -0.10 -0.11 -0.13 -0.21 -0.33 -0.60 -0.94 -1.30 -1.54 -1.82 -1.82 -1.54
-0.21 -0.13 -0.11 -0.13 0.00
-1 1.E-05 -0.13 -0.10 -0.09 -0.10 -0.11 -0.15 -0.26 -0.43 -0.87 -1.23 -1.93 -2.23 -2.59 -2.59 -2.23
-0.26 -0.16 -0.11 -0.14 0.00
2 1.E-05 -0.13 -0.10 -0.09 -0.10 -0.12 -0.16 -0.29 -0.42 -0.74 -1.34 -1.89 -2.80 -4.04 -4.04 -2.80
-0.29 -0.16 -0.12 -0.14 0.00
3 1.E-05 -0.13 -0.10 -0.10 -0.10 -0.12 -0.17 -0.29 -0.47 -0.94 -1.64 -2.49 -3.33 -4.94 -4.94 -3.33
-0.29 -0.17 -0.13 -0.14 0.00
4 1.E-05 -0.13 -0.10 -0.10 -0.10 -0.12 -0.19 -0.31 -0.54 -1.23 -1.84 -2.83 -3.67 -5.12 -5.12 -3.67
-0.31 -0.19 -0.13 -0.14 0.00
5 1.E-05 -0.13 -0.10 -0.09 -0.10 -0.12 -0.16 -0.27 -0.45 -0.81 -1.40 -2.11 -3.13 -3.76 -3.76 -3.13
-0.27 -0.16 -0.12 -0.14 0.00
6 1.E-05 -0.13 -0.10 -0.09 -0.10 -0.11 -0.15 -0.23 -0.32 -0.61 -0.87 -1.50 -2.03 -2.27 -2.27 -2.03
-0.23 -0.15 -0.11 -0.14 0.00
7 1.E-05 -0.13 -0.10 -0.09 -0.10 -0.12 -0.18 -0.25 -0.39 -0.60 -0.82 -1.33 -1.23 -1.23 -1.23 -1.33
-0.18 -0.12 -0.11 -0.13 0.00
8 1.E-06 -1.29 -0.97 -0.93 -0.94 -1.02 -1.10 -1.35 -1.65 -2.77 -3.42 -5.28 -6.29 -7.43 -7.43 -6.29
-1.35 -1.11 -1.06 -1.31 0.00
9 1.E-06 -1.29 -0.97 -0.93 -0.92 -0.95 -1.00 -1.08 -1.40 -1.84 -2.38 -2.88 -3.05 -3.74 -3.74 -3.05
-1.08 -1.01 -0.99 -1.29 0.00
10 1.E-06 -1.29 -0.97 -0.93 -0.92 -0.93 -0.97 -1.00 -1.14 -1.22 -1.57 -1.79 -2.30 -2.04 -2.04 -2.30
-1.00 -0.98 -0.98 -1.29 0.00
11 1.E-06 -1.29 -0.97 -0.93 -0.92 -0.92 -0.93 -0.95 -1.05 -1.05 -1.19 -1.31 -1.30 -1.55 -1.55 -1.30
-0.95 -0.94 -0.97 -1.29 0.00
12 1.E-06 -1.29 -0.97 -0.94 -0.93 -0.93 -0.93 -0.94 -0.96 -0.98 -0.98 -1.02 -1.10 -1.11 -1.11 -1.10
-0.94 -0.93 -0.97 -1.29 0.00
13 1.E-06 -1.30 -1.00 -0.97 -0.97 -0.97 -0.97 -0.97 -0.96 -0.97 -0.99 -1.00 -1.03 -1.03 -1.03 -1.03
-0.97 -0.97 -1.00 -1.30 0.00
14 1.E-06 -1.44 -1.30 -1.29 -1.29 -1.29 -1.29 -1.29 -1.29 -1.29 -1.29 -1.29 -1.29 -1.30 -1.30 -1.29
-1.29 -1.29 -1.30 -1.44 0.00
15 1.E-06 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00

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END OF CODE DATA.

SCRN INFORMATION FOR SLICE 1208 - -2

-->X IS HORIZONTAL, Y IS VERTICAL--

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15 16 17 18 19
-4 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
3 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
2 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
1 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
0 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-1 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-2 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-3 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-4 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-5 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-6 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-7 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-8 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-9 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-10 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-11 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-12 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-13 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-14 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-15 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-16 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-17 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-18 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00
-19 1.E-06 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 0.00

```

THE ENTIRE SCR DATA IS AS FOLLOWS

SCRN INFORMATION FOR SLICE 1208 - -3

-->X IS HORIZONTAL, Y IS VERTICAL--

[illegible]

Where Shuttle Polar 1.1 Results

[illegible]

SCREEN INFORMATION FOR SLICE I208 - 7

-->X IS HORIZONTAL. Y IS VERTICAL--

[illegible]

SCREEN INFORMATION FOR SLICE 120B - 6

-->X IS HORIZONTAL, Y IS VERTICAL<--

[illegible]

SCREEN INFORMATION FOR SLICE 1308 - 8

-->X IS HORIZONTAL. Y IS VERTICAL.<--

[illegible]

[illegible][illegible]

SCN INFORMATION FOR SLICE 122B - 12																					
-->X IS HORIZONTAL, Y IS VERTICAL-->																					
	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10		15	16	17	18	19
4 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
5 1 F 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
6 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
7 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
8 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
9 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
10 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
11 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
12 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
13 1 F 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
14 1 E 0 *	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00	-4.00
15 1 F 1 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16 0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

[illegible]

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-->X IS HCRIZONTAL, Y IS VERTICAL<--
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[illegible][illegible]

Item	Unit	Price	Quantity	Total
1.000	kg	1.00	1.000	1.000,00
2.000	kg	2.00	2.000	2.000,00
3.000	kg	3.00	3.000	3.000,00
4.000	kg	4.00	4.000	4.000,00
5.000	kg	5.00	5.000	5.000,00
6.000	kg	6.00	6.000	6.000,00
7.000	kg	7.00	7.000	7.000,00
8.000	kg	8.00	8.000	8.000,00
9.000	kg	9.00	9.000	9.000,00
10.000	kg	10.00	10.000	10.000,00
11.000	kg	11.00	11.000	11.000,00
12.000	kg	12.00	12.000	12.000,00
13.000	kg	13.00	13.000	13.000,00
14.000	kg	14.00	14.000	14.000,00
15.000	kg	15.00	15.000	15.000,00
16.000	kg	16.00	16.000	16.000,00
17.000	kg	17.00	17.000	17.000,00
18.000	kg	18.00	18.000	18.000,00
19.000	kg	19.00	19.000	19.000,00
20.000	kg	20.00	20.000	20.000,00
21.000	kg	21.00	21.000	21.000,00
22.000	kg	22.00	22.000	22.000,00
23.000	kg	23.00	23.000	23.000,00
24.000	kg	24.00	24.000	24.000,00
25.000	kg	25.00	25.000	25.000,00
26.000	kg	26.00	26.000	26.000,00
27.000	kg	27.00	27.000	27.000,00
28.000	kg	28.00	28.000	28.000,00
29.000	kg	29.00	29.000	29.000,00
30.000	kg	30.00	30.000	30.000,00
31.000	kg	31.00	31.000	31.000,00
32.000	kg	32.00	32.000	32.000,00
33.000	kg	33.00	33.000	33.000,00
34.000	kg	34.00	34.000	34.000,00
35.000	kg	35.00	35.000	35.000,00
36.000	kg	36.00	36.000	36.000,00
37.000	kg	37.00	37.000	37.000,00
38.000	kg	38.00	38.000	38.000,00
39.000	kg	39.00	39.000	39.000,00
40.000	kg	40.00	40.000	40.000,00
41.000	kg	41.00	41.000	41.000,00
42.000	kg	42.00	42.000	42.000,00
43.000	kg	43.00	43.000	43.000,00
44.000	kg	44.00	44.000	44.000,00
45.000	kg	45.00	45.000	45.000,00
46.000	kg	46.00	46.000	46.000,00
47.000	kg	47.00	47.000	47.000,00
48.000	kg	48.00	48.000	48.000,00
49.000	kg	49.00	49.000	49.000,00
50.000	kg	50.00	50.000	50.000,00
51.000	kg	51.00	51.000	51.000,00
52.000	kg	52.00	52.000	52.000,00
53.000	kg	53.00	53.000	53.000,00
54.000	kg	54.00	54.000	54.000,00
55.000	kg	55.00	55.000	55.000,00
56.000	kg	56.00	56.000	56.000,00
57.000	kg	57.00	57.000	57.000,00
58.000	kg	58.00	58.000	58.000,00
59.000	kg	59.00	59.000	59.000,00
60.000	kg	60.00	60.000	60.000,00
61.000	kg	61.00	61.000	61.000,00
62.000	kg	62.00	62.000	62.000,00
63.000	kg	63.00	63.000	63.000,00
64.000	kg	64.00	64.000	

[illegible]

```
-->X IS HORIZONTAL, Y IS VERTICAL<--
```

[illegible]

Micro Shuttle POLAR 1.1 Results

***** TIMER CALL FROM SCIENC *****

***** AT THE TERMINUS *****

ELAPSED: 0 01:20:53.73 CPU: 1:13:44.05 BUFIO: 588 DIRIO: 17998 FAULTS: 715
EXIT WTERAK

POLAR 1.1.1 WTERAK

```

asqfil called for lun = 11
FastIO file opened -- lun = 11
asqfil called for lun = 9
FastIO file opened -- lun = 9
asqfil called for lun = 19
FastIO file opened -- lun = 19
asqfil called for lun = 10
FastIO file opened -- lun = 10
asqfil called for lun = 23
asqfil called for lun = 24

```

Micro Shuttle POLAR 1.1 Results

INTERAK INPUT SECTION

NEXT CARD PLEASE.
BATCH
DEFAULT

DEFAULTS SET

ISTART old
IGICAL old

OPTIM-IGICAL OLD CHANGED TO OLDI

ACCEPTABLE OPTIONS ARE YES, NO, OLDI (USE OLD DIONS) AND OLDI (USE OLD GIS).

EFIDCOR NO

MADD 0

remack INPUT PRE

precng no

POTVAL -50.

VMACH 0.0 0.0 0.0

MAXITS 2

MAXITC 15

POTCON 5

SGALPH 4.0

CBETA 1.0

remack PDIE 2.0

VLTFIX -0.05

ADRMIN 1.00-20

TEMP 0.1

DENS 1.0E10

DEN2 4.2E6

TEMP2 4.3E3

POMCO 1.4E12

PALPHA 1.2

GAUCO 8.8E5

ENAUT 8.2E3

DELTA 1.8E3

PCUTL 50.0

PCUTH 1000000.0

BATIN 100.0

NYACNS 4

NYACIN 4

NYACNB 4

NYADNT 4

NZADON 3

NZTAIL 8

STHPOT -0.1

DVLIM 500.0

CONGV 1 -50.

DELTA2 0.3

MAXITT 1

BFIELD ON

BIACS(1) 2

BIACS(2) 1

LOGR'D NO

ISUBIT PART

ICONG NO

INPUT NO

CUT:PH
CURPOT DEFAULTED TO -0.41*TEMP, -4.500GE-0.2

COMPUTATION SPACE

THE OBJECT(S) APPEAR TO LIE BETWEEN Z = 2 14

THE COMP GRID WILL BE SHIFTED BY ONE UNIT IN THE X OR Y DIRECTIONS
EVERY IDELX OR IDELY UNITS OF Z IDELX = 200 IDELY = 200

SO THE COMP GRID NOW HAS THE FOLLOWING FEATURES:

THE X AND Y GRID GROWTH REQUIRED TO FIT THE OBJECT GRID IN THE DISPLACED COMP GRID IS,

NYGRTH = 0 NYGRTH = 0

CONSIDERING THE ADD-ONS THE NEW COMP GRID DIMENSIONS ARE:

NX = 72 NY = 18 NZ = 28

Micro Shuttle Polar 1.1 Results

SPACECRAFT ENVIRONMENT

THE DENVE LENGTH = 2.3496E-02
 THE DIMENSIONLESS DENVE LENGTH, DENVM = 6.5264E-03
 PSIM = LM (SCALPH+DENVE**2/DN**2) = -8.674E+00 SCALPH = 4.0000E+00
 STMPOT = -1.0000E-01
 CURPOT = -4.5000E-02 CURPOT/TEMP = -4.5000E-01

BOUNDS ON MATERIAL CROSSOVER POINTS
 MATERIAL (8) NUMBER OF PTS VALUES(- TO +)

MRS1	1	2	-1.0000E+04	-5.0000E-02
MRS1	2	2	-1.0000E+04	-5.0000E-02
LRS1	3	2	-1.0000E+04	-5.0000E-02
LESS	4	2	-1.0000E+04	-5.0000E-02
AQUA	5	2	-1.0000E+04	-5.0000E-02
KAPT	6	2	-1.0000E+04	-5.0000E-02

*** ENVIRONMENTAL PARAMETERS FOR ELECTRONS ***

AMBIENT MAXWELLIAN, TEMP= 1.000E-01 EV, DENSITY= 1.000E+10/M3, FLUX= 5.290JE+144/M2.S
 ENERGETIC MAXWELLIAN, TEMP= 4.300E+03 EV, DENSITY= 4.200E+06/M3, FLUX= 4.6078E+136/M2.S
 POWER LAW ELEC, COEF=, 1.400E+12 ALPHA= 1.2000E-00
 CUTOFFS, LOW= 5.000E+01 HIGH 1.0000E+06 EV,
 FLUX = 3.201E+12 #/M2.S.
 GAUSSIAN ELECTRONS, COEF= 8.800E+03 ENAUT= 8.2000E+03 EV, DELTA= 1.800E+03 EV
 FLUX= 2.3022E+13 #/M2.S.

*** ENVIRONMENTAL PARAMETERS FOR IONS ***

MAXWELLIAN TEMP FOR ALL COMPONENTS = 1.000E-01EV,
 RATIO OF IONS TO HYDROGEN = 1.000E+02, AMU IONS = 16.00
 DENSITIES: DENH = 0.990E+08, DENI = 0.990E+10/M3
 FLUXES: FNORH = 1.223E+11, FNORMI = 3.056E+124/M2.S.
 V THERMAL = 7.7397E+02 M/S.
 AND THE OBJECT VELOCITY IS 0.0000E+00, 0.0000E+00, 6.1917E+03, M/S
 WARNINGoparms - MS FILE 11 ALREADY OPEN.

NOW WE CAN DO SOME SCIENCE

DOUBLE POINT POTENTIALS
 MORD, TOP, BOTTOM
 24777 -5.0000E+01 -5.0000E+01
 28873 -5.0000E+01 -5.0000E+01
 28936 -5.0000E+01 -5.0000E+01
 28938 -5.0000E+01 -5.0000E+01
 32969 -5.0000E+01 -5.0000E+01
 33032 -5.0000E+01 -5.0000E+01
 33034 -5.0000E+01 -5.0000E+01
 37065 -5.0000E+01 -5.0000E+01
 37128 -5.0000E+01 -5.0000E+01
 37130 -5.0000E+01 -5.0000E+01
 41161 -5.0000E+01 -5.0000E+01
 41224 -5.0000E+01 -5.0000E+01
 41226 -5.0000E+01 -5.0000E+01
 45255 -5.0000E+01 -5.0000E+01
 45257 -5.0000E+01 -5.0000E+01
 45259 -5.0000E+01 -5.0000E+01
 45320 -5.0000E+01 -5.0000E+01
 45322 -5.0000E+01 -5.0000E+01
 49351 -5.0000E+01 -5.0000E+01
 49353 -5.0000E+01 -5.0000E+01
 49355 -5.0000E+01 -5.0000E+01
 53446 -5.0000E+01 -5.0000E+01
 53447 -5.0000E+01 -5.0000E+01
 53451 -5.0000E+01 -5.0000E+01
 53452 -5.0000E+01 -5.0000E+01
 53577 -5.0000E+01 -5.0000E+01
 0 0

Micro Shuttle POLAR 1.1 Results

MOVING 1208 SLICE	4	MOVING 1208 SLICE	19
MOVING 1208 SLICE	5	MOVING 1208 SLICE	20
MOVING 1208 SLICE	6	MOVING 1208 SLICE	21
MOVING 1208 SLICE	7	MOVING 1208 SLICE	22
MOVING 1208 SLICE	8	MOVING 1208 SLICE	23
MOVING 1208 SLICE	9	MOVING 1208 SLICE	24
MOVING 1208 SLICE	10	MOVING 1208 SLICE	25
MOVING 1208 SLICE	11	+++PUSHING LEFT+++	
MOVING 1208 SLICE	12	MOVING 1208 SLICE	25
MOVING 1208 SLICE	13	MOVING 1208 SLICE	24
MOVING 1208 SLICE	14	MOVING 1208 SLICE	23
MOVING 1208 SLICE	15	MOVING 1208 SLICE	22
MOVING 1208 SLICE	16	MOVING 1208 SLICE	21
MOVING 1208 SLICE	17	MOVING 1208 SLICE	20
MOVING 1208 SLICE	18	MOVING 1208 SLICE	19
MOVING 1208 SLICE	19	MOVING 1208 SLICE	18
MOVING 1208 SLICE	20	MOVING 1208 SLICE	17
MOVING 1208 SLICE	21	MOVING 1208 SLICE	16
MOVING 1208 SLICE	22	MOVING 1208 SLICE	15
MOVING 1208 SLICE	23	MOVING 1208 SLICE	14
MOVING 1208 SLICE	24	MOVING 1208 SLICE	13
MOVING 1208 SLICE	25	MOVING 1208 SLICE	12
+++PUSHING LEFT+++		MOVING 1208 SLICE	11
MOVING 1208 SLICE	25	MOVING 1208 SLICE	10
MOVING 1208 SLICE	24	MOVING 1208 SLICE	9
MOVING 1208 SLICE	23	MOVING 1208 SLICE	8
MOVING 1208 SLICE	22	MOVING 1208 SLICE	7
MOVING 1208 SLICE	21	MOVING 1208 SLICE	6
MOVING 1208 SLICE	20	MOVING 1208 SLICE	5
MOVING 1208 SLICE	19	MOVING 1208 SLICE	4
MOVING 1208 SLICE	18	MOVING 1208 SLICE	3
MOVING 1208 SLICE	17	MOVING 1208 SLICE	2
MOVING 1208 SLICE	16	MOVING 1208 SLICE	1
MOVING 1208 SLICE	15	MOVING 1208 SLICE	0
MOVING 1208 SLICE	14	MOVING 1208 SLICE	-1
MOVING 1208 SLICE	13	MOVING 1208 SLICE	-2
MOVING 1208 SLICE	12	MOVING 1208 SLICE	-3
MOVING 1208 SLICE	11	+++PUSHING RIGHT+++	
MOVING 1208 SLICE	10	MOVING 1208 SLICE	-3
MOVING 1208 SLICE	9	MOVING 1208 SLICE	-2
MOVING 1208 SLICE	8	MOVING 1208 SLICE	-1
MOVING 1208 SLICE	7	MOVING 1208 SLICE	0
MOVING 1208 SLICE	6	MOVING 1208 SLICE	1
MOVING 1208 SLICE	5	MOVING 1208 SLICE	2
MOVING 1208 SLICE	4	MOVING 1208 SLICE	3
MOVING 1208 SLICE	3	MOVING 1208 SLICE	4
MOVING 1208 SLICE	2	MOVING 1208 SLICE	5
MOVING 1208 SLICE	1	MOVING 1208 SLICE	6
MOVING 1208 SLICE	0	MOVING 1208 SLICE	7
MOVING 1208 SLICE	-1	MOVING 1208 SLICE	8
MOVING 1208 SLICE	-2	MOVING 1208 SLICE	9
MOVING 1208 SLICE	-3	MOVING 1208 SLICE	10
+++PUSHING RIGHT+++		MOVING 1208 SLICE	11
MOVING 1208 SLICE	-3	MOVING 1208 SLICE	12
MOVING 1208 SLICE	-2	MOVING 1208 SLICE	13
MOVING 1208 SLICE	-1	MOVING 1208 SLICE	14
MOVING 1208 SLICE	0	MOVING 1208 SLICE	15
MOVING 1208 SLICE	1	MOVING 1208 SLICE	16
MOVING 1208 SLICE	2	MOVING 1208 SLICE	17
MOVING 1208 SLICE	3	MOVING 1208 SLICE	18
MOVING 1208 SLICE	4	MOVING 1208 SLICE	19
MOVING 1208 SLICE	5	MOVING 1208 SLICE	20
MOVING 1208 SLICE	6	MOVING 1208 SLICE	21
MOVING 1208 SLICE	7	MOVING 1208 SLICE	22
MOVING 1208 SLICE	8	MOVING 1208 SLICE	23
MOVING 1208 SLICE	9	MOVING 1208 SLICE	24
MOVING 1208 SLICE	10	MOVING 1208 SLICE	25
MOVING 1208 SLICE	11	+++PUSHING LEFT+++	
MOVING 1208 SLICE	12	MOVING 1208 SLICE	25
MOVING 1208 SLICE	13	MOVING 1208 SLICE	24
MOVING 1208 SLICE	14	MOVING 1208 SLICE	23
MOVING 1208 SLICE	15	MOVING 1208 SLICE	22
MOVING 1208 SLICE	16	MOVING 1208 SLICE	21
MOVING 1208 SLICE	17	MOVING 1208 SLICE	20
MOVING 1208 SLICE	18	MOVING 1208 SLICE	19

Micro Shuttle Polar 1.1 Results

MOVING 1208 SLICE 16
MOVING 1208 SLICE 17
MOVING 1208 SLICE 18
MOVING 1208 SLICE 19
MOVING 1208 SLICE 20
MOVING 1208 SLICE 21
MOVING 1208 SLICE 22
MOVING 1208 SLICE 23
MOVING 1208 SLICE 24
MOVING 1208 SLICE 25
MOVING 1208 SLICE 26
MOVING 1208 SLICE 27
MOVING 1208 SLICE 28
MOVING 1208 SLICE 29
MOVING 1208 SLICE 30
MOVING 1208 SLICE 31
MOVING 1208 SLICE 32
MOVING 1208 SLICE 33
MOVING 1208 SLICE 34
MOVING 1208 SLICE 35
MOVING 1208 SLICE 36
MOVING 1208 SLICE 37
MOVING 1208 SLICE 38
MOVING 1208 SLICE 39
MOVING 1208 SLICE 40

WARNINGCURRENT-ACTIVE PARTICLES PERSIST AFTER 3 CYCLES. 2 TRAPPED ORBITS PROBABLE.

PROPERTIES (FROM SHEATH: 24.11 CURT: 10.75 DEAD: 1384 LOGST: 0
2 PARTICLES WERE STILL MOVING, POSSIBLY IN TRAPPED ORBITS.
CUT OF SHEATH CURRENT (electrons) 0.0000E+00 AMPS (IONS) 1.4934E-03 AMPS
Current to object (electrons) 0.0000E+00 AMPS (IONS) 1.0630E-02 AMPS
Lost currents (electrons) 0.0000E+00 AMPS (IONS) 0.0000E+00 AMPS
WARNINGopenings - MS FILL TO ALREADY OPEN.

***** TIMER CALL FROM SCIENCE *****

***** BEFORE JONKER *****
ELAPSED: 0 00:10:17.111 SEC 0.08:46.05 BUFIO: 42 DIRIO: 5556 FAULTS: 496
PUSHED ION CURRENT TO OBJECT= 1.0630E-02 AMPS
PUSHED ELECTRON CURRENT TO OBJECT= 0.0000E+00 AMPS
TOTAL FLOWED CURRENT TO OBJECT= 1.0630E-02 AMPS
WARNINGopenings - MS FILL TO ALREADY OPEN.
WARNINGopenings - MS FILL TO ALREADY OPEN.

***** TIMER CALL FROM SCIENCE *****

***** BEFORE JONKER *****
ELAPSED: 0 00:10:18.55 CPU: 0.08:53.47 BUFIO: 42 DIRIO: 5556 FAULTS: 496
PUSHED ION CURRENT TO OBJECT= 1.0630E-02 AMPS
PUSHED ELECTRON CURRENT TO OBJECT= 0.0000E+00 AMPS
TOTAL FLOWED CURRENT TO OBJECT= 1.0630E-02 AMPS
WARNINGopenings - MS FILL TO ALREADY OPEN.
WARNINGopenings - MS FILL TO ALREADY OPEN.

***** TIMER CALL FROM SCIENCE *****

***** AT THE TERMINUS *****
ELAPSED: 0 00:10:19.55 CPU: 0.09:04.94 BUFIO: 42 DIRIO: 5556 FAULTS: 496
PUSHED ION CURRENT TO OBJECT= 1.0630E-02 AMPS
PUSHED ELECTRON CURRENT TO OBJECT= 0.0000E+00 AMPS
TOTAL FLOWED CURRENT TO OBJECT= 1.0630E-02 AMPS
WARNINGopenings - MS FILL TO ALREADY OPEN.
WARNINGopenings - MS FILL TO ALREADY OPEN.

CALCULATE SURFACE POTENTIALS (CHARGE)
THIS IS CYCLE 1 OF CHARGE

***** TIMER CALL FROM SCIENCE *****

***** BEFORE CHARGE *****
ELAPSED: 0 00:10:55.47 CPU: 0.09:08.73 BUFIO: 56 DIRIO: 6218 FAULTS: 496
ENTERING CHARGE SECTION. **WILL CHARGE IMPLICITLY.
GROUND CONDUCTOR VOLTAGE IS -5.0000E+01
CHARGE WILL ALWAYS RESET TO ANYFIX-NO AND ALLFIX-YES
Charge is resetting the j1x array to 0

CONDUCTOR ENVELOPE AND BEAM INFO (MAGNETIC)
ICOND NSFCND ave Eda Beam Ibeam Vbeam Bencur
1 -5.2427E+01 -4.7309E-04 -6.5312E-04 0.0000E+00 3.0000E-01 NEW DELTAT. 0.0000E+00

CONDUCTOR CURRENT INFORMATION (MAGNETIC)
ICOND AVE V Iraw Ibeam Isec HOPPING PHOTO
1 -5.2427E+01 -4.7309E-04 -6.5312E-04 0.0000E+00 3.0000E-04 0.0000E+00 0.0000E+00

INFORMATION FOR JTSR LENGTH = 138

	0	1	2	3	4	5
1	4.814322E-05	4.814317E-05	1.222754E-04	1.222753E-04	5.815225E-05	4.450
9	4.978811E-05	4.978795E-05	6.279744E-05	6.279738E-05	1.953493E-06	-3.673
17	-1.036635E-06	-1.197739E-06	-1.016678E-06	-1.197848E-06	-2.499111E-05	-2.702
25	-8.615069E-05	-2.702737E-05	-4.994456E-05	-4.088692E-05	-1.117498E-04	-4.088692E-05
33	-9.125048E-05	-6.022231E-05	-4.577358E-05	-4.577358E-05	-6.022242E-05	-9.125048E-05
41	-9.230546E-05	-5.861064E-05	-6.005637E-05	-4.134595E-04	-6.005637E-05	-9.230546E-05
49	-7.734643E-05	-9.919608E-05	-8.842738E-05	-8.555000E-05	-6.005637E-05	-8.063
57	-1.376122E-04	-8.063192E-05	-8.965175E-05	-1.009270E-04	-1.027424E-04	-7.048
65	-9.262565E-05	-7.047608E-05	-1.102739E-04	-1.102739E-04	-1.027424E-04	-1.048
73	-1.175595E-04	-1.047635E-04	-6.755620E-05	-1.009270E-04	-1.030111E-04	-1.009
81	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
89	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
97	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
105	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
113	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
121	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
129	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
137	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
145	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
153	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398

*****ANALYZE SURFACES IS ON
THIS IS THE EXPLICIT STEP OF SURFING
MAGNETIC - calculating parameter 1) using dvolim = 5.0000E+02 ADVAR = 2.0000E+00

INFORMATION FOR JTSR LENGTH = 138

	0	1	2	3	4	5
1	4.814322E-05	4.814317E-05	1.222754E-04	1.222753E-04	5.815225E-05	-4.450
9	4.978811E-05	4.978795E-05	6.279744E-05	6.279738E-05	1.953493E-06	-3.673
17	-1.036635E-06	-1.197739E-06	-1.016678E-06	-1.197848E-06	-2.499111E-05	-2.702
25	-8.615069E-05	-2.702737E-05	-4.994456E-05	-4.088692E-05	-1.117498E-04	-4.088692E-05
33	-9.125048E-05	-6.022231E-05	-4.577358E-05	-4.577358E-05	-6.022242E-05	-9.125048E-05
41	-9.230546E-05	-5.861064E-05	-6.005637E-05	-4.134595E-04	-6.005637E-05	-9.230546E-05
49	-7.734643E-05	-9.919608E-05	-8.842738E-05	-8.555000E-05	-6.005637E-05	-8.063
57	-1.376122E-04	-8.063192E-05	-8.965175E-05	-1.009270E-04	-1.027424E-04	-7.048
65	-9.262565E-05	-7.047608E-05	-1.102739E-04	-1.102739E-04	-1.027424E-04	-1.048
73	-1.175595E-04	-1.047635E-04	-6.755620E-05	-1.009270E-04	-1.030111E-04	-1.009
81	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
89	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
97	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
105	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
113	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
121	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
129	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
137	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
145	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398
153	-1.194947E-04	-1.186387E-04	-1.614198E-04	-1.614198E-04	-1.131289E-04	-1.398

***BUCKET WARNING LIST AIRWAY IN CRUISE WITH 11 TRAPPED ORBITS. DATA IGNORED


```

***CALCULATE SPACE POTENTIALS (PMASON)+++
THIS IS CYCLE   2 OF PMASON

***** TIMER CALL FROM SCIENT *****

***** BEFORE PMASON *****
ELAPSED= 0 00:16:31.64 CPU: 0:14:25.16 BUFIO: 100 DIRIO: 7007 FAULTS: 406
POTENTIALS will be found with a RMS error convergence limit = 5.0000E-02
ICUR= 1
MAXITC = 15 MAXITS = 2
INITIAL RDOTR=0.621391D+06

****CONGRD ITERATION 1 ****
UDOTMU = 1 COPROD OF U DOT MU
RDOTR = 2.671700D+06 A = 2.232E-01 B = 4.300E-02
ORIGINAL RDOTR = 6.21391E+05
LAST RDOTR = 6.21391D+05
(RDOTR ORIGINAL)/(RDOTR NEW) = 2.3250E+01
LOG 10 OF RDOTR RATIO = CONV = 1.36658E+00 POTCON = 5.00000E+00

****CONGRD ITERATION 2 ****
UDOTMU = 1.459D+05 A = 1.832E-01 B = 5.147E-02
RDOTR = 1.37514D+03
ORIGINAL RDOTR = 6.21391E+05
LAST RDOTR = 2.67170D+04
(RDOTR ORIGINAL)/(RDOTR NEW) = 4.51873E+02
LAG 10 OF RDOTR RATIO = CONV = 2.65502E+00 POTCON = 5.00000E+00

****CONGRD ITERATION 3 ****
UDOTMU = 7.380D+03 A = 1.863E-01 B = 4.956E-02
RDOTR = 6.81557D+01
ORIGINAL RDOTR = 6.21391E+05
LAST RDOTR = 1.37514D+03
(RDOTR ORIGINAL)/(RDOTR NEW) = 9.11722E+03
LAG 10 OF RDOTR RATIO = CONV = 3.95986E+00 POTCON = 5.00000E+00

****CONGRD ITERATION 4 ****
UDOTMU = 3.500D+02 A = 1.947E-01 B = 5.668E-02
RDOTR = 3.86321D+00
ORIGINAL RDOTR = 6.21391E+05
LAST RDOTR = 6.81557D+01
(RDOTR ORIGINAL)/(RDOTR NEW) = 1.60848E+05
LAG 10 OF RDOTR RATIO = CONV = 5.20642E+00 POTCON = 5.00000E+00
**SSCONGRD - RDOTR/RDOORG = 0.386321D+01/G.621391E+06 RDRMIN = 0.100000D-19
AFTER 4 ITERATIONS

```

```

*****CYCLE 1 DONE*** (3.00000E-01 SECS ELAPSED.)
      GROUND CONDUCTOR VOLTAGE IS -1.1470E+02
      LEAVING CHARGE SECTION
CONCRD SATISFACTORILY CONVERGED

```

```

$$$ TOTAL CHARGING TIME = 3.00E-01 SECONDS
$$$ 3.00E-01 SECONDS THIS CHARGE CYCLE.
*****WARNING*****OPENING - MS FILE IS ALREADY OPEN.
          ## AFTER CONGRD, TOTAL SPCHNG ITERATION COUNT, IT=ITST = 3,
          ## 1TH ITERATION FOR ITN

```

```
***** TIMER CALL FROM SCIENT *****
```

DOUBLE POINT POTENTIALS					
		WORD, TOP,		BOTTOM	
	24727	-1	1608E+03	-1	1640E+03

[illegible][illegible]

33034	-1.1585E+02	-1.1667E+02
37065	-1.1686E+02	-1.1717E+02
37128	-1.1633E+02	-1.1672E+02

37130	-1.1633E+02	-1.1672E+02
41161	-1.1712E+02	-1.1738E+02
41274	-1.1666E+02	-1.1708E+02

41226	-1.1666E+02	-1.1708E+02
43255	-1.1656E+02	-1.1677E+02
43257	-1.1730E+02	-1.1746E+02

45259	-1.1656E+02	-1.1677E+02
45320	-1.1666E+02	-1.179E+02
45322	-1.1668E+02	-1.1798E+02

49324	-1.1660E+02	-1.1726E+02
49331	-1.1660E+02	-1.1655E+02
49353	-1.1750E+02	-1.1740E+02

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09359 -3 1.76E-02 1.53E+01
09360 -3 1.76E-02 1.53E+02
09361 -3 1.76E-02 1.53E+03
09362 -3 1.76E-02 1.53E+04
09363 -3 1.76E-02 1.53E+05
09364 -3 1.76E-02 1.53E+06
09365 -3 1.76E-02 1.53E+07
09366 -3 1.76E-02 1.53E+08
09367 -3 1.76E-02 1.53E+09
09368 -3 1.76E-02 1.53E+10
09369 -3 1.76E-02 1.53E+11
09370 -3 1.76E-02 1.53E+12
09371 -3 1.76E-02 1.53E+13
09372 -3 1.76E-02 1.53E+14
09373 -3 1.76E-02 1.53E+15
09374 -3 1.76E-02 1.53E+16
09375 -3 1.76E-02 1.53E+17
09376 -3 1.76E-02 1.53E+18
09377 -3 1.76E-02 1.53E+19
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09379 -3 1.76E-02 1.53E+21
09380 -3 1.76E-02 1.53E+22
09381 -3 1.76E-02 1.53E+23
09382 -3 1.76E-02 1.53E+24
09383 -3 1.76E-02 1.53E+25
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09419 -3 1.76E-02 1.53E+61
09420 -3 1.76E-02 1.53E+62
09421 -3 1.76E-02 1.53E+63
09422 -3 1.76E-02 1.53E+64
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09429 -3 1.76E-02 1.53E+71
09430 -3 1.76E-02 1.53E+72
09431 -3 1.76E-02 1.53E+73
09432 -3 1.76E-02 1.53E+74
09433 -3 1.76E-02 1.53E+75
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09435 -3 1.76E-02 1.53E+77
09436 -3 1.76E-02 1.53E+78
09437 -3 1.76E-02 1.53E+79
09438 -3 1.76E-02 1.53E+80
09439 -3 1.76E-02 1.53E+81
09440 -3 1.76E-02 1.53E+82
09441 -3 1.76E-02 1.53E+83
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09457 -3 1.76E-02 1.53E+99
09458 -3 1.76E-02 1.53E+100
09459 -3 1.76E-02 1.53E+101
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09463 -3 1.76E-02 1.53E+105
09464 -3 1.76E-02 1.53E+106
09465 -3 1.76E-02 1.53E+107
09466 -3 1.76E-02 1.53E+108
09467 -3 1.76E-02 1.53E+109
09468 -3 1.76E-02 1.53E+110
09469 -3 1.76E-02 1.53E+111
09470 -3 1.76E-02 1.53E+112
09471 -3 1.76E-02 1.53E+113
09472 -3 1.76E-02 1.53E+114
09473 -3 1.76E-02 1.53E+115
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09475 -3 1.76E-02 1.53E+117
09476 -3 1.76E-02 1.53E+118
09477 -3 1.76E-02 1.53E+119
09478 -3 1.76E-02 1.53E+120
09479 -3 1.76E-02 1.53E+121
09480 -3 1.76E-02 1.53E+122
09481 -3 1.76E-02 1.53E+123
09482 -3 1.76E-02 1.53E+124
09483 -3 1.76E-02 1.53E+125
09484 -3 1.76E-02 1.53E+126
09485 -3 1.76E-02 1.53E+127
09486 -3 1.76E-02 1.53E+128
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09488 -3 1.76E-02 1.53E+130
09489 -3 1.76E-02 1.53E+131
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09492 -3 1.76E-02 1.53E+134
09493 -3 1.76E-02 1.53E+135
09494 -3 1.76E-02 1.53E+136
09495 -3 1.76E-02 1.53E+137
09496 -3 1.76E-02 1.53E+138
09497 -3 1.76E-02 1.53E+139
09498 -3 1.76E-02 1.53E+140
09499 -3 1.76E-02 1.53E+141
09500 -3 1.76E-02 1.53E+142
09501 -3 1.76E-02 1.53E+143
09502 -3 1.76E-02 1.53E+144
09503 -3 1.76E-02 1.53E+145
09504 -3 1.76E-02 1.53E+146
09505 -3 1.76E-02 1.53E+147
09506 -3 1.76E-02 1.53E+148
09507 -3 1.76E-02 1.53E+149
09508 -3 1.76E-02 1.53E+150
09509 -3 1.76E-02 1.53E+151
09510 -3 1.76E-02 1.53E+152
09511 -3 1.76E-02 1.53E+153
09512 -3 1.76E-02 1.53E+154
09513 -3 1.76E-02 1.53E+155
09514 -3
```

AFTER CONGRD, TOTAL SPCHG ITERATION COUNT, ITSPST = 4, 2TH ITERATION FOR THIS RUN
GREETINGS FROM POTSET

DOUBLE POINT POTENTIALS

	TOP	BOTTOM
24771	-1.1604E+02	-1.1660E+02
24772	-1.1604E+02	-1.1660E+02
24773	-1.1648E+02	-1.1686E+02
24774	-1.1648E+02	-1.1686E+02
24775	-1.1531E+02	-1.1654E+02
24776	-1.1531E+02	-1.1654E+02
24777	-1.1605E+02	-1.1713E+02
24778	-1.1605E+02	-1.1713E+02
24779	-1.1595E+02	-1.1667E+02
24780	-1.1595E+02	-1.1667E+02
24781	-1.1585E+02	-1.1672E+02
24782	-1.1585E+02	-1.1672E+02
24783	-1.1666E+02	-1.1717E+02
24784	-1.1666E+02	-1.1717E+02
24785	-1.1633E+02	-1.1672E+02
24786	-1.1633E+02	-1.1672E+02
24787	-1.1712E+02	-1.1708E+02
24788	-1.1712E+02	-1.1708E+02
24789	-1.1666E+02	-1.1708E+02
24790	-1.1666E+02	-1.1708E+02
24791	-1.1656E+02	-1.1677E+02
24792	-1.1656E+02	-1.1677E+02
24793	-1.1738E+02	-1.1746E+02
24794	-1.1738E+02	-1.1746E+02
24795	-1.1656E+02	-1.1677E+02
24796	-1.1656E+02	-1.1677E+02

THE ENTIRE POT DATA IS AS FOLLOWS

POT INFORMATION FOR SLICE IZOB - -2

-->X IS HORIZONTAL. Y IS VERTICAL<--

	16	17	18	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
1	-3.1	1.6	-4.7	-7.25	-7.77	-7.79	-7.79	-7.79	-7.79	-7.79	-7.79	-7.79	-7.76	-7.78	-7.77	-7.77	-7.77	-7.78
2	-7.79	-7.77	-7.35	-7.77	-8.24	-8.27	-8.28	-8.28	-8.27	-8.27	-8.25	-8.23	-8.21	-8.20	-8.19	-8.20	-8.21	-8.21
3	-8.27	-8.24	-7.77	-7.79	-8.27	-8.31	-8.32	-8.32	-8.31	-8.31	-8.29	-8.25	-8.19	-8.13	-8.06	-8.02	-8.06	-8.13
4	-8.31	-8.27	-7.79	-7.79	-8.27	-8.31	-8.32	-8.32	-8.32	-8.30	-8.25	-8.17	-8.03	-7.84	-7.71	-7.69	-7.71	-7.84
5	-8.31	-8.28	-7.79	-7.79	-8.28	-8.32	-8.32	-8.32	-8.31	-8.28	-8.20	-8.04	-7.76	-7.43	-7.18	-6.96	-7.18	-7.43
6	-8.31	-8.27	-7.79	-7.79	-8.28	-8.32	-8.32	-8.32	-8.31	-8.26	-8.15	-7.88	-7.47	-6.99	-6.43	-6.47	-6.43	-6.99
7	-8.31	-8.27	-7.79	-7.79	-8.28	-8.32	-8.32	-8.32	-8.31	-8.24	-8.12	-7.75	-7.33	-6.51	-6.21	-5.67	-6.21	-6.51
8	-8.30	-8.27	-7.79	-7.79	-8.28	-8.32	-8.32	-8.32	-8.31	-8.24	-8.12	-7.73	-7.32	-6.45	-6.21	-5.56	-6.21	-6.45
9	-8.30	-8.27	-7.79	-7.79	-8.28	-8.32	-8.32	-8.32	-8.31	-8.25	-8.14	-7.85	-7.40	-6.90	-6.26	-6.37	-6.26	-6.90
10	-8.30	-8.27	-7.79	-7.79	-8.28	-8.32	-8.32	-8.32	-8.31	-8.28	-8.19	-7.88	-7.30	-7.03	-6.76	-7.03	-7.30	-7.30
11	-8.31	-8.27	-7.79	-7.79	-8.28	-8.32	-8.32	-8.32	-8.31	-8.28	-8.19	-7.88	-7.30	-7.03	-6.76	-7.03	-7.30	-7.30

[illegible]

--->X IS HORIZONTAL, Y IS VERTICAL<---

3 2 1 0 -1 -2

-0.24 -0.27 -0.28 -0.20 -0.28 -0.27

-9.03 -9.09 -9.09 -9.09 -9.09

-9.09 -9.15 -9.16 -9.16 -9.15 -9.13

-9.09 -9.14 -9.16 -9.16 -9.15 -9.09

-0.91 -0.92 -0.92 -0.92 -0.91 -0.90

-0.91 -0.92 -0.92 -0.92 -0.91 -0.90

-0.91 -0.92 -0.92 -0.92 -0.91 -0.89

-0.91 -0.92 -0.92 -0.92 -0.91 -0.89

-0.91 -0.92 -0.92 -0.92 -0.9; -0.89

-0.91 -0.92 -0.92 -0.92 -0.91 -0.90

-9.09 -9.16 -9.17 -9.16 -9.15 -9.07

-9.09 -9.16 -9.17 -9.16 -9.16 -9.12

9.4-9.6-9.7-9.16-9.15

9.09-9.16-7:6-9.17-9.18-9.16

-9.79 = 0 . -9.16 = -.16 -9.16 = -9.16

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[illegible]

[illegible][illegible]

Micro Shuttle Polar 1-1 Results

[illegible]

POT INFORMATION FOR SLICE 120B - 0

-->X IS HORIZONTAL, Y IS VERTICAL<--

| | | | | | | | | | | | | | | | | | |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----|
| 16 | 17 | 18 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 13.1 E-4 | -7.79 | -8.74 | -8.31 | -8.31 | -8.26 | -8.11 | -7.73 | -6.96 | -5.70 | -3.97 | -2.09 | -0.59 | -0.03 | -0.59 | -2.09 | -5.50 | |
| -6.10 E-22 | -7.78 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | -8.22 | |
| 1.2 E-3 | -0.63 | -0.91 | -0.91 | -0.90 | -0.86 | -0.75 | -0.55 | -0.17 | 0.39 | 1.04 | 1.55 | 1.79 | 1.55 | 1.04 | 0.39 | -0.17 | |
| -0.86 E-09 | -0.82 | -0.83 | -0.83 | -0.82 | -0.82 | -0.81 | -0.80 | -0.75 | -0.55 | -0.17 | 0.39 | 1.04 | 1.55 | 1.79 | 1.55 | 1.04 | |
| 1.1 E-3 | -0.83 | -0.92 | -0.92 | -0.91 | -0.87 | -0.80 | -1.01 | -1.36 | -2.33 | -3.36 | -5.42 | -6.09 | -6.82 | -6.09 | -5.42 | -2.33 | |
| -0.80 E-06 | -0.82 | -0.83 | -0.83 | -0.82 | -0.82 | -0.81 | -0.80 | -0.75 | -0.55 | -0.17 | 0.39 | 1.04 | 1.55 | 1.79 | 1.55 | 1.04 | |
| 0.1 E-1 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.02 | -0.11 | -0.23 | -0.47 | -0.73 | -1.00 | -1.03 | -1.00 | -0.73 | -0.23 | |
| 1.1 E-0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 0.00 E-0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 0.00 E-0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2.1 E-0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3.1 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4.1 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5.1 E-2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6.1 E-0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7.1 E-1 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.01 | -0.02 | -0.15 | -2.11 | -7.91 | -5.92 | -4.83 | -6.84 | -4.83 | -5.92 | -2.11 | |
| 8.1 E-2 | -0.08 | -0.09 | -0.10 | -0.09 | -0.08 | -0.07 | -0.10 | -0.16 | -1.39 | -3.14 | -3.55 | -3.09 | -4.30 | -3.09 | -3.55 | -1.39 | |
| -0.07 E-08 | -0.08 | -0.09 | -0.09 | -0.08 | -0.08 | -0.07 | -0.07 | -0.06 | -0.05 | -0.04 | -0.03 | -0.02 | -0.01 | -0.02 | -0.03 | -0.05 | |
| 9.1 E-3 | -0.03 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | |
| 0.82 E-08 | -0.03 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 | |
| 0.31 E-4 | -0.32 | -0.17 | -0.25 | -0.25 | -0.15 | -0.97 | -0.27 | -7.03 | -4.47 | 1.25 | 2.78 | 5.06 | 6.41 | 5.06 | 2.78 | 1.25 | |
| 8.96 E-06 | -0.31 | -0.17 | -0.25 | -0.25 | -0.15 | -0.97 | -0.27 | -7.03 | -4.47 | 1.25 | 2.78 | 5.06 | 6.41 | 5.06 | 2.78 | 1.25 | |
| 9.16 E-14 | -0.32 | -0.17 | -0.25 | -0.25 | -0.15 | -0.97 | -0.27 | -7.03 | -4.47 | 1.25 | 2.78 | 5.06 | 6.41 | 5.06 | 2.78 | 1.25 | |
| 2.1 E-4 | -0.32 | -0.17 | -0.25 | -0.25 | -0.15 | -0.97 | -0.27 | -7.03 | -4.47 | 1.25 | 2.78 | 5.06 | 6.41 | 5.06 | 2.78 | 1.25 | |
| 3.1 E-4 | -0.32 | -0.17 | -0.25 | -0.25 | -0.15 | -0.97 | -0.27 | -7.03 | -4 | | | | | | | | |

100-2 INFORMATION FOR SLICF 17CR -

--X IS HORIZONTAL, Y IS VERTICAL.

[illegible]

POT INFORMATION FOR SLICE 1208 - 6

-->X IS HORIZONTAL, Y IS VERTICAL<--

[illegible]

-9.17 -9.23 -9.23 -9.19 -9.07 -8.37 -7

-9.17 -9.23 -9.26 -9.24 -9.19 -9.04

[illegible]

[illegible]

C-179

1.1 Results

[illegible]

POT INFORMATION FOR SLICE 120B - 15

-->X IS HORIZONTAL. Y IS VERTICAL<--

[illegible]

NOT INFORMATION FOR SLICE 14

SX IS HORIZINTA: Y IS VERTICALE--

[illegible]

POT INFORMATION FOR SIZE 1200 - 16

[illegible]

NOT RECORDED ON 10/10/1908 - 23

Micro Shuttle POLAR 1.1 Results

| --X IS HORIZONTAL, Y IS VERTICAL-- | | | | | | | | | | | | | | | | |
|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 16 | 17 | 18 | | | | | | | | | | | | | | |
| -0.99 | -0.93 | -0.83 | | | | | | | | | | | | | | |
| 11.1E-3 | -0.78 | -0.83 | -0.83 | -0.84 | -0.86 | -0.90 | -0.97 | -1.07 | -1.23 | -1.40 | -1.51 | -1.55 | -1.51 | -1.40 | | |
| -0.86 | -0.83 | -0.78 | | | | | | | | | | | | | | |
| -2.1E-3 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0.92 | -0.92 | -0.92 | -0.92 | -0.94 | -0.96 | -1.00 | -1.05 | -1.09 | -1.14 | -1.16 | -1.14 | -1.09 |
| -0.92 | -0.91 | -0.83 | | | | | | | | | | | | | | |
| 13.1E-4 | -0.83 | -0.91 | -0.92 | -0 | | | | | | | | | | | | |

Micro Shuttle POLAR 1.1 Results

[illegible]

FOUSD INFORMATION FOR SLICE 120H - 19

--->X IS HORIZONTAL. Y IS VERTICAL<---

[illegible]

ENDED INFORMATION FOR SLICE 120B - 10

-->X IS HORIZONTAL. Y IS VERTICAL<--

Micro Shuttle POLAR 1.1 Results

9 1.E-6 -0.81 -0.09 -0.01 0.00 0.01 0.04 0.08 0.17 0.39 0.61 0.88 1.05 1.05 0.86
0.04 0.00 -0.09 -0.07 0.00
10 1.E-7 -0.70 -0.80 -0.08 -0.01 0.00 0.03 0.12 0.39 0.78 0.99 1.74 2.20 2.23 2.20
0.11 -0.05 -0.80 -0.70 0.00
11 1.E-7 -0.70 -0.80 -0.09 -0.01 -0.01 0.00 0.02 0.07 0.20 0.43 0.62 0.78 0.81 0.81 0.78
0.01 -0.08 -0.80 -0.70 0.00
12 1.E-7 -0.72 -0.94 -0.15 -0.09 -0.08 -0.08 -0.07 -0.05 -0.01 0.05 0.11 0.16 0.16 0.11
-0.08 -0.15 -0.94 -0.72 0.00
13 1.E-7 -0.95 -1.55 -0.94 -0.89 -0.88 -0.88 -0.88 -0.88 -0.88 -0.88 -0.85 -0.85 -0.85 -0.85
-0.09 -0.94 -1.55 -0.95 0.00
14 1.E-6 -1.25 -0.89 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87
-0.87 -0.87 -1.25 0.00
15 1.E-1 -0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00

QUAD INFORMATION FOR SLICE 120B - 20

-->X IS HORIZONTAL, Y IS VERTICAL--

15 16 17 18 19
-4 1.E-6 -1.25 -0.89 -0.87 -0.87 -0.87 -0.86 -0.85 -0.83 -0.81 -0.81 -0.81 -0.81 -0.81 -0.81
-0.86 -0.87 -0.89 -1.25 0.00
3 1.E-7 -0.95 -1.55 -0.94 -0.88 -0.86 -0.78 -0.47 -0.13 0.66 1.15 1.72 2.32 2.44 2.44 2.32
-0.48 -0.93 -1.54 -0.94 0.00
2 1.E-6 -0.87 -0.09 -0.02 -0.01 0.00 0.02 0.07 0.18 0.31 0.63 0.90 1.15 1.33 1.33 1.15
0.07 0.02 -0.09 -0.07 0.00
-1 1.E-6 -0.87 -0.09 -0.01 0.00 0.02 0.06 0.21 0.49 0.84 1.32 1.33 2.35 1.91 1.91 2.35
0.21 0.06 -0.07 -0.07 0.00
0 1.E-6 -0.87 -0.09 -0.01 0.00 0.04 0.12 0.41 0.97 1.55 2.35 2.56 2.18 2.42 2.42 2.18
0.41 0.11 -0.05 -0.06 0.00
1 1.E-6 -0.87 -0.09 -0.01 0.01 0.05 0.18 0.59 1.26 0.85 0.71 0.57 2.57 4.94 4.94 2.57
0.59 0.18 -0.04 -0.06 0.00
2 1.E-6 -0.87 -0.09 -0.01 0.01 0.07 0.24 0.78 1.66 1.92 2.12 2.98 1.42 -0.51 -0.51 1.42
0.78 0.23 -0.07 -0.08 0.00
3 1.E-5 -0.09 -0.01 0.00 0.00 0.01 0.03 0.08 0.16 0.16 0.16 -0.07 -0.59 -0.32 -4.22 -4.22 -0.32
0.08 0.03 0.00 -0.09 0.00
4 1.E-5 -0.09 -0.01 0.00 0.00 0.01 0.02 0.06 0.16 0.16 0.16 0.00 -0.37 0.24 -4.19 -4.19 0.24
0.06 0.02 0.00 -0.09 0.00
5 1.E-6 -0.87 -0.09 -0.01 0.01 0.07 0.18 0.58 1.31 2.39 4.62 8.28 4.24 0.31 0.31 4.24
0.58 0.17 -0.02 -0.06 0.00
6 1.E-6 -0.87 -0.09 -0.01 0.01 0.05 0.11 0.37 0.88 1.73 3.16 5.27 4.93 3.48 3.48 4.93
0.37 0.11 -0.04 -0.06 0.00
7 1.E-6 -0.87 -0.09 -0.01 0.00 0.03 0.08 0.17 0.47 0.75 1.75 3.04 2.00 3.18 3.18 2.00
0.16 0.07 -0.06 -0.07 0.00
8 1.E-6 -0.87 -0.09 -0.01 0.00 0.01 0.05 0.11 0.23 0.41 0.76 1.40 1.80 2.27 2.27 1.80
0.11 0.04 -0.08 -0.07 0.00
9 1.E-6 -0.87 -0.09 -0.01 0.00 0.00 0.02 0.05 0.10 0.20 0.43 0.62 0.94 1.07 1.07 0.94
0.05 0.01 -0.08 -0.07 0.00
10 1.E-7 -0.70 -0.89 -0.08 -0.01 0.01 0.06 0.23 0.58 0.90 1.12 1.99 2.32 2.72 2.72 2.32
0.22 -0.02 -0.87 -0.69 0.00
11 1.E-7 -0.70 -0.89 -0.09 -0.01 -0.01 0.01 0.05 0.14 0.37 0.58 0.65 1.08 1.03 1.03 1.08
0.04 -0.07 -0.80 -0.70 0.00
12 1.E-7 -0.72 -0.94 -0.15 -0.09 -0.08 -0.08 -0.07 -0.05 -0.01 0.01 0.18 0.26 0.26 0.19
-0.08 -0.15 -0.94 -0.72 0.00
13 1.E-7 -0.95 -1.55 -0.94 -0.89 -0.88 -0.88 -0.88 -0.88 -0.88 -0.88 -0.85 -0.85 -0.85 -0.85
-0.89 -0.94 -1.55 -0.95 0.00
14 1.E-6 -1.25 -0.89 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87
-0.87 -0.87 -1.25 0.00
15 1.E-1 -0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00

QUAD INFORMATION FOR SLICE 120B - 21

-->X IS HORIZONTAL, Y IS VERTICAL--

15 16 17 18 19
-4 1.E-6 -1.25 -0.89 -0.87 -0.87 -0.87 -0.86 -0.85 -0.83 -0.81 -0.81 -0.81 -0.81 -0.81 -0.81
-0.86 -0.87 -0.89 -1.25 0.00
3 1.E-7 -0.95 -1.55 -0.94 -0.88 -0.86 -0.78 -0.47 -0.13 0.66 1.15 1.72 2.32 2.44 2.44 2.32
-0.48 -0.93 -1.54 -0.94 0.00
2 1.E-6 -0.87 -0.09 -0.02 -0.01 0.00 0.02 0.07 0.18 0.31 0.63 0.90 1.15 1.33 1.33 1.15
0.07 0.02 -0.09 -0.07 0.00
-1 1.E-6 -0.87 -0.09 -0.01 0.00 0.02 0.06 0.21 0.49 0.84 1.32 1.33 2.35 1.91 1.91 2.35
0.21 0.06 -0.07 -0.07 0.00
0 1.E-6 -0.87 -0.09 -0.01 0.00 0.04 0.12 0.41 0.97 1.55 2.35 2.56 2.18 2.42 2.42 2.18
0.41 0.11 -0.05 -0.06 0.00
1 1.E-6 -0.87 -0.09 -0.01 0.01 0.05 0.18 0.59 1.26 0.85 0.71 0.57 2.57 4.94 4.94 2.57
0.59 0.18 -0.04 -0.06 0.00
2 1.E-6 -0.87 -0.09 -0.01 0.01 0.07 0.24 0.78 1.66 1.92 2.12 2.98 1.42 -0.51 -0.51 1.42
0.78 0.23 -0.07 -0.08 0.00
3 1.E-5 -0.09 -0.01 0.00 0.00 0.01 0.03 0.08 0.16 0.16 0.16 -0.07 -0.59 -0.32 -4.22 -4.22 -0.32
0.08 0.03 0.00 -0.09 0.00
4 1.E-5 -0.09 -0.01 0.00 0.00 0.01 0.02 0.06 0.16 0.16 0.16 0.00 -0.37 0.24 -4.19 -4.19 0.24
0.06 0.02 0.00 -0.09 0.00
5 1.E-6 -0.87 -0.09 -0.01 0.01 0.07 0.18 0.58 1.31 2.39 4.62 8.28 4.24 0.31 0.31 4.24
0.58 0.17 -0.02 -0.06 0.00
6 1.E-6 -0.87 -0.09 -0.01 0.01 0.05 0.11 0.37 0.88 1.73 3.16 5.27 4.93 3.48 3.48 4.93
0.37 0.11 -0.04 -0.06 0.00
7 1.E-6 -0.87 -0.09 -0.01 0.00 0.03 0.08 0.17 0.47 0.75 1.75 3.04 2.00 3.18 3.18 2.00
0.16 0.07 -0.06 -0.07 0.00
8 1.E-6 -0.87 -0.09 -0.01 0.00 0.01 0.05 0.11 0.23 0.41 0.76 1.40 1.80 2.27 2.27 1.80
0.11 0.04 -0.08 -0.07 0.00
9 1.E-6 -0.87 -0.09 -0.01 0.00 0.00 0.02 0.05 0.10 0.20 0.43 0.62 0.94 1.07 1.07 0.94
0.05 0.01 -0.08 -0.07 0.00
10 1.E-7 -0.70 -0.89 -0.08 -0.01 0.01 0.06 0.23 0.58 0.90 1.12 1.99 2.32 2.72 2.72 2.32
0.22 -0.02 -0.87 -0.69 0.00
11 1.E-7 -0.70 -0.89 -0.09 -0.01 -0.01 0.01 0.05 0.14 0.37 0.58 0.65 1.08 1.03 1.03 1.08
0.04 -0.07 -0.80 -0.70 0.00
12 1.E-7 -0.72 -0.94 -0.15 -0.09 -0.08 -0.08 -0.07 -0.05 -0.01 0.01 0.18 0.26 0.26 0.19
-0.08 -0.15 -0.94 -0.72 0.00
13 1.E-7 -0.95 -1.55 -0.94 -0.89 -0.88 -0.88 -0.88 -0.88 -0.88 -0.88 -0.85 -0.85 -0.85 -0.85
-0.89 -0.94 -1.55 -0.95 0.00
14 1.E-6 -1.25 -0.89 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87 -0.87
-0.87 -0.87 -1.25 0.00
15 1.E-1 -0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00
0.00 0.00 0.00 0.00 0.00

Micro Shuttle POLAR 1.1 Results

| | | | | | | | | | | | | | | | | | | | | |
|--|----|----|----|----|----|----|----|----|----|---|---|---|---|---|---|---|---|---|---|----|
| -4.00 -4.00 -4.00 -4.00 0.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.1E 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 0.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| SCRM INFORMATION FOR SLICE 120B - 5 | | | | | | | | | | | | | | | | | | | | |
| -->X IS HORIZONTAL, Y IS VERTICAL-- | | | | | | | | | | | | | | | | | | | | |
| -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.1E 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 0.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| SCRM INFORMATION FOR SLICE 120B - 6 | | | | | | | | | | | | | | | | | | | | |
| -->X IS HORIZONTAL, Y IS VERTICAL-- | | | | | | | | | | | | | | | | | | | | |
| -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1.1E 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| -4.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 0.00 | 15 | 16 | 17 | 18 | 19 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

Micro Shuttle POLAR 1.1 Results

```

-4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
9 1.2 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
10 1.2 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
11 1.2 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
12 1.2 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
13 1.2 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
14 1.2 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
-4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
15 1.2 0 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00 -4.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

```

***** TIMER CALL FROM SCIENC *****

***** AT THE TERMINUS *****

ELAPSED: 0 00:40:57.71 CPU: 0.32:42.14 BUFTO: 437 DIRIO: 25583 FAULTS: 610

NEXT CARD PLEASE.

ENDRUN

***** TIMER CALL FROM SCIENC *****

***** AT THE TERMINUS *****

ELAPSED: 0 00:40:58.31 CPU: 0.32:42.39 BUFTO: 437 DIRIO: 25595 FAULTS: 610

END OF SCRN DATA.

Normal E field after PHASOR

THE ENTIRE ENRM DATA IS AS FOLLOWS

INFORMATION FOR ENRM LENGTH - 158

```

1 -1.546770E+02 -1.546770E+02 -1.004241E+02 -1.004241E+02 -9.176438E+01 -9.176438E+01 -9.176438E+01 -9.176438E+01 -8.314
9 -1.030636E+02 -1.030636E+02 -9.017591E+01 -9.017591E+01 -8.160101E+02 -8.160101E+02 -8.160101E+02 -8.160101E+02 -6.160
17 -1.136242E+02 -1.136242E+02 -6.353531E+01 -6.353531E+01 -7.619027E+01 -7.619027E+01 -7.619027E+01 -7.619027E+01 -1.027
25 -4.706104E+01 -4.706104E+01 -1.027475E+02 -1.027475E+02 -7.129436E+01 -7.129436E+01 -7.129436E+01 -7.129436E+01 -2.704
33 -1.169007E+02 -1.169007E+02 -1.169007E+02 -1.169007E+02 -1.169007E+02 -1.169007E+02 -1.169007E+02 -1.169007E+02 -9.737
41 -6.111992E+01 -6.111992E+01 -9.737010E+01 -9.737010E+01 -8.149800E+01 -8.149800E+01 -8.149800E+01 -8.149800E+01 -8.438
49 -7.943040E+01 -7.943040E+01 -5.936274E+01 -5.936274E+01 -2.103101E+02 -2.103101E+02 -2.103101E+02 -2.103101E+02 -5.936
57 -2.501548E+01 -2.501548E+01 -5.936274E+01 -5.936274E+01 -8.314968E+01 -8.314968E+01 -8.314968E+01 -8.314968E+01 -7.587
65 -2.835070E+01 -2.835070E+01 -7.587032E+01 -7.587032E+01 -5.421902E+01 -5.421902E+01 -5.421902E+01 -5.421902E+01 -7.587
73 -6.307352E+01 -6.307352E+01 -7.587032E+01 -7.587032E+01 -5.421902E+01 -5.421902E+01 -5.421902E+01 -5.421902E+01 -7.587
81 -1.412178E+02 -1.412178E+02 -3.690331E+01 -3.690331E+01 -2.050376E+01 -2.050376E+01 -2.050376E+01 -2.050376E+01 -5.731
89 -6.492487E+01 -6.492487E+01 -2.854481E+01 -2.854481E+01 -1.907360E+01 -1.907360E+01 -1.907360E+01 -1.907360E+01 -5.731
97 -8.002873E+01 -8.002873E+01 -2.854481E+01 -2.854481E+01 -1.907360E+01 -1.907360E+01 -1.907360E+01 -1.907360E+01 -5.731
105 -7.997466E+01 -7.997466E+01 -4.068931E+01 -4.068931E+01 -4.459001E+01 -4.459001E+01 -4.459001E+01 -4.459001E+01 -5.272
113 -4.744666E+01 -4.744666E+01 -2.923252E+01 -2.923252E+01 -6.456033E+01 -6.456033E+01 -6.456033E+01 -6.456033E+01 -2.854
121 -2.923252E+01 -2.923252E+01 -6.456033E+01 -6.456033E+01 -1.695843E+02 -1.695843E+02 -1.695843E+02 -1.695843E+02 -5.272
129 -6.065452E+01 -6.065452E+01 -1.695843E+02 -1.695843E+02 -9.325324E+01 -9.325324E+01 -9.325324E+01 -9.325324E+01 -5.272
137 -9.325324E+01 -9.325324E+01 -1.695843E+02 -1.695843E+02 -1.703872E+02 -1.703872E+02 -1.703872E+02 -1.703872E+02 -5.272
145 -7.313811E+01 -7.313811E+01 -7.075809E+01 -7.075809E+01 -6.971439E+01 -6.971439E+01 -6.971439E+01 -6.971439E+01 -5.272
153 -1.122626E+02 -1.122626E+02 -7.407135E+01 -7.407135E+01 -1.122626E+02 -1.122626E+02 -1.122626E+02 -1.122626E+02 -5.272

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INFORMATION FOR SRV LENGTH - 158

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1 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02
9 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02 -1.034992E+02
17 -1.142506E+02 -1.142506E+02 -1.142506E+02 -1.142506E+02 -1.142506E+02 -1.142506E+02 -1.142506E+02 -1.142506E+02 -1.142506E+02 -1.142506E+02
25 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
33 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
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57 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
65 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
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81 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
89 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
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137 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
145 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02
153 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02 -1.167498E+02

```

WARNINGopens - MS FILE 11 ALREADY OPEN.

-1.18E+02

-1.15E+02

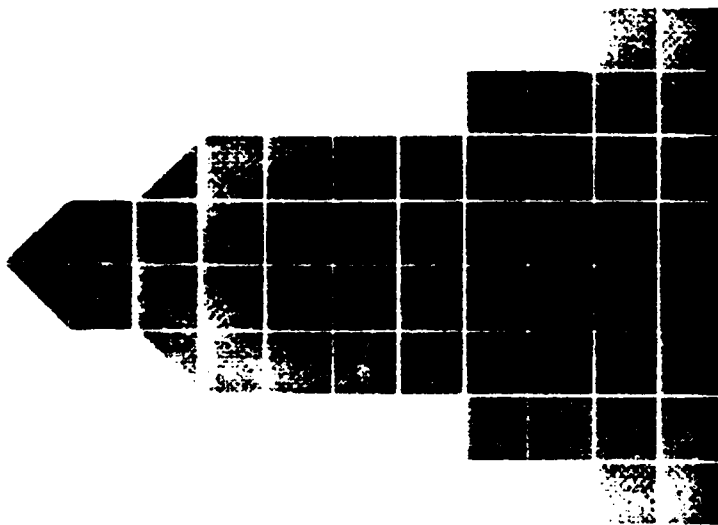
-1.12E+02

-1.09E+02

-1.06E+02

-1.03E+02

FUNCTION
PRINTER



VIEW
??
EXIT
Would you like a hardcopy (0=n,1=y) ? 1